

CONTAINS NO CBI

SECTION 1 GENERAL MANUFACTURER, IMPORTER, AND PROCESSOR INFORMATION

90-890000573

EPA-OTS



0006626640

PART A GENERAL REPORTING INFORMATION

1.01 This Comprehensive Assessment Information Rule (CAIR) Reporting Form has been

completed in response to the Federal Register Notice of..... [1][2] [2][2] [8][8]
mo. day year

CBI

☐ a. If a Chemical Abstracts Service Number (CAS No.) is provided in the Federal Register, list the CAS No. [0][2][6][4][7][1]-[6][2]-[5]

b. If a chemical substance CAS No. is not provided in the Federal Register, list either (i) the chemical name, (ii) the mixture name, or (iii) the trade name of the chemical substance as provided in the Federal Register.

(i) Chemical name as listed in the rule _____

(ii) Name of mixture as listed in the rule _____

(iii) Trade name as listed in the rule _____

c. If a chemical category is provided in the Federal Register, report the name of the category as listed in the rule, the chemical substance CAS No. you are reporting on which falls under the listed category, and the chemical name of the substance you are reporting on which falls under the listed category.

Name of category as listed in the rule _____

CAS No. of chemical substance [0][2][6][4][7][1]-[6][2]-[5]

Name of chemical substance TOLUENE DIISOCYANATE

80/20 BLEND OF 2,4:2,6 ISOMER

1.02 Identify your reporting status under CAIR by circling the appropriate response(s).

CBI Manufacturer 1

☐ Importer 2

Processor 3

X/P manufacturer reporting for customer who is a processor 4

X/P processor reporting for customer who is a processor 5

☐ Mark (X) this box if you attach a continuation sheet.

03 AUG -1 AM 8:01
016 200000573
OFFICE

- 1.03 Does the substance you are reporting on have an "x/p" designation associated with it in the above-listed Federal Register Notice?
- CBI
- ☐ Yes ☒ Go to question 1.04
- ☐ No ☐ Go to question 1.05

- 1.04 a. Do you manufacture, import, or process the listed substance and distribute it under a trade name(s) different than that listed in the Federal Register Notice? Circle the appropriate response.

CBI

☐ Yes ①

☐ No 2

- b. Check the appropriate box below:

☐ You have chosen to notify your customers of their reporting obligations

Provide the trade name(s)

☐ You have chosen to report for your customers

☒ You have submitted the trade name(s) to EPA one day after the effective date of the rule in the Federal Register Notice under which you are reporting.

- 1.05 If you buy a trade name product and are reporting because you were notified of your reporting requirements by your trade name supplier, provide that trade name.

CBI

☐ Trade name

Is the trade name product a mixture? Circle the appropriate response.

Yes 1

No 2

- 1.06 Certification -- The person who is responsible for the completion of this form must sign the certification statement below:

CBI

☐ "I hereby certify that, to the best of my knowledge and belief, all information entered on this form is complete and accurate."

JAMES R. HUERTA
NAME

[Signature]
SIGNATURE

07-06-89
DATE SIGNED

ENVIRONMENTAL MANAGER (517) 263 - 2121
TITLE TELEPHONE NO.

☐ Mark (X) this box if you attach a continuation sheet.

- 1.07 Exemptions From Reporting -- If you have provided EPA or another Federal agency with the required information on a CAIR Reporting Form for the listed substance within the past 3 years, and this information is current, accurate, and complete for the time period specified in the rule, then sign the certification below. You are required to complete section 1 of this CAIR form and provide any information now required but not previously submitted. Provide a copy of any previous submissions along with your Section 1 submission.

CBI

☐

"I hereby certify that, to the best of my knowledge and belief, all required information which I have not included in this CAIR Reporting Form has been submitted to EPA within the past 3 years and is current, accurate, and complete for the time period specified in the rule."

_____ NAME	_____ SIGNATURE	_____ DATE SIGNED
_____ TITLE	(_____) _____ TELEPHONE NO.	_____ DATE OF PREVIOUS SUBMISSION

- 1.08 CBI Certification -- If you have asserted any CBI claims in this report you must certify that the following statements truthfully and accurately apply to all of those confidentiality claims which you have asserted.

CBI

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"My company has taken measures to protect the confidentiality of the information, and it will continue to take these measures; the information is not, and has not been, reasonably ascertainable by other persons (other than government bodies) by using legitimate means (other than discovery based on a showing of special need in a judicial or quasi-judicial proceeding) without my company's consent; the information is not publicly available elsewhere; and disclosure of the information would cause substantial harm to my company's competitive position."

JAMES R HUERTA
NAME


SIGNATURE

07-06-89
DATE SIGNED

ENVIRONMENTAL MANAGER (517)
TITLE

263 - 2121
TELEPHONE NO.

☐ Mark (X) this box if you attach a continuation sheet.

PART B CORPORATE DATA

1.09 Facility Identification

CBI Name [A][N][D][I][E][R][S][O][N][] [D][E][V][E][L][O][P][M][E][N][T][] [C][O][] [] []
[] Address [1][4][1][5][] [E][A][S][T][] [M][I][C][H][I][G][A][N][] [S][T][R][E][E][T][]
Street
[A][D][R][I][A][N][] [] [] [] [] [] [] [] [] [] [] [] [] [] [] []
City
[M][I][] [4][9][2][2][1][]--[3][4][9][9][]
State Zip

Dun & Bradstreet Number[0][0]-[2][9][3]-[1][2][2][8]
EPA ID Number[0][0][2][9][3][1][2][2][8]
Employer ID Number[3][8][1][8][6][3][2][1][3]
Primary Standard Industrial Classification (SIC) Code[2][8][9][7]
Other SIC Code[2][8][1][9]
Other SIC Code[2][8][2][7]

1.10 Company Headquarters Identification

CBI Name [A][N][D][I][E][R][S][O][N][] [D][E][V][E][L][O][P][M][E][N][T][] [C][O][] [] []
[] Address [1][4][1][5][] [E][A][S][T][] [M][I][C][H][I][G][A][N][] [S][T][R][E][E][T][]
Street
[A][D][R][I][A][N][] [] [] [] [] [] [] [] [] [] [] [] [] [] [] []
City
[M][I][] [4][9][2][2][1][]--[3][4][9][9][]
State Zip

Dun & Bradstreet Number[0][0]-[2][9][3]-[1][2][2][8]
Employer ID Number[3][8][1][8][6][3][2][1][3]

[] Mark (X) this box if you attach a continuation sheet.

1.11 Parent Company Identification

CBI Name [M][I][C][I][N][D][U][S][T][R][I][E][S], [I][N][C].
[] Address [2][2][9] [S][O][U][T][H] [S][T][A][T][E] [S][T][R][E][E][T]
[D][O][U][B][E][R]
State [D][E] Zip [1][9][9][0][1]
Dun & Bradstreet Number []-[]-[]
NONE

1.12 Technical Contact

CBI Name [J][A][M][E][S] [R.] [H][U][B][E][R][T] [A]
[] Title [E][N][V][I][R][O][N][M][E][N][T][A][L] [M][A][N][A][G][E][R]
Address [1][4][1][S] [E][A][S][T] [M][I][C][H][I][G][A][N] [S][T][R][E][E][T]
[A][D][R][I][A][N]
State [M][I] Zip [4][9][2][2][1]
Telephone Number [5][1][7]-[2][6][3]-[2][1][2][1]

1.13 This reporting year is from [0][1] [8][8] to [0][1] [8][9]
Mo. Year Mo. Year

[] Mark (X) this box if you attach a continuation sheet.

1.16 For each classification listed below, state the quantity of the listed substance that was manufactured, imported, or processed at your facility during the reporting year.

CBI

☐

Classification

Quantity (kg/yr)

Manufactured	<u>NONE</u>
Imported	<u>NONE</u>
Processed (include quantity repackaged)	<u>174,359</u>

Of that quantity manufactured or imported, report that quantity:

In storage at the beginning of the reporting year	<u>NA</u>
For on-site use or processing	<u>NA</u>
For direct commercial distribution (including export)	<u>NA</u>
In storage at the end of the reporting year	<u>NA</u>

Of that quantity processed, report that quantity:

In storage at the beginning of the reporting year	<u>13,620</u>
Processed as a reactant (chemical producer)	<u>174,359</u>
Processed as a formulation component (mixture producer)	<u>NA</u>
Processed as an article component (article producer)	<u>NA</u>
Repackaged (including export)	<u>NA</u>
In storage at the end of the reporting year	<u>21,579</u>

☐ Mark (X) this box if you attach a continuation sheet.

1.17 Mixture -- If the listed substance on which you are required to report is a mixture or a component of a mixture, provide the following information for each component chemical. (If the mixture composition is variable, report an average percentage of each component chemical for all formulations.)

[]

Component Name	Supplier Name	Average % Composition by Weight (specify precision, e.g., 45% ± 0.5%)
NA	NA	NA
Total		100%

☐ Mark (X) this box if you attach a continuation sheet.

2.04 State the quantity of the listed substance that your facility manufactured, imported, or processed during the 3 corporate fiscal years preceding the reporting year in descending order.

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☐ Year ending [1][1] [8][7]
Mo. Year

Quantity manufactured NA kg

Quantity imported NA kg

Quantity processed 96,430 kg

Year ending [1][1] [8][6]
Mo. Year

Quantity manufactured NA kg

Quantity imported NA kg

Quantity processed 114,276 kg

Year ending [1][1] [8][5]
Mo. Year

Quantity manufactured NA kg

Quantity imported NA kg

Quantity processed 161,974 kg

2.05 Specify the manner in which you manufactured the listed substance. Circle all appropriate process types.

CBI

☐ Continuous process 1

Semicontinuous process 2

Batch process 3

☐ Mark (X) this box if you attach a continuation sheet.

2.06 Specify the manner in which you processed the listed substance. Circle all appropriate process types.

- ☐ Continuous process 1
- ☐ Semicontinuous process 2
- ☐ Batch process 3

2.07 State your facility's name-plate capacity for manufacturing or processing the listed substance. (If you are a batch manufacturer or batch processor, do not answer this question.)

- ☐ Manufacturing capacity kg/yr
- ☐ Processing capacity kg/yr

2.08 If you intend to increase or decrease the quantity of the listed substance manufactured, imported, or processed at any time after your current corporate fiscal year, estimate the increase or decrease based upon the reporting year's production volume.

	Manufacturing Quantity (kg)	Importing Quantity (kg)	Processing Quantity (kg)
Amount of increase	NA	NA	NA
Amount of decrease	NA	NA	NA

☐ Mark (X) this box if you attach a continuation sheet.

- 2.09 For the three largest volume manufacturing or processing process types involving the listed substance, specify the number of days you manufactured or processed the listed substance during the reporting year. Also specify the average number of hours per day each process type was operated. (If only one or two operations are involved, list those.)

CBI

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Days/Year Average
Hours/Day

Process Type #1 (The process type involving the largest quantity of the listed substance.)

Manufactured	<u>NA</u>	<u>NA</u>
Processed	<u>21</u>	<u>24</u>

Process Type #2 (The process type involving the 2nd largest quantity of the listed substance.)

Manufactured	<u>NA</u>	<u>NA</u>
Processed	<u>25</u>	<u>24</u>

Process Type #3 (The process type involving the 3rd largest quantity of the listed substance.)

Manufactured	<u>NA</u>	<u>NA</u>
Processed	<u>9</u>	<u>24</u>

- 2.10 State the maximum daily inventory and average monthly inventory of the listed substance that was stored on-site during the reporting year in the form of a bulk chemical.

CBI

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Maximum daily inventory	_____	kg
Average monthly inventory	_____	kg

☐ Mark (X) this box if you attach a continuation sheet.

- 2.11 Related Product Types -- List any byproducts, coproducts, or impurities present with the listed substance in concentrations greater than 0.1 percent as it is manufactured, imported, or processed. The source of byproducts, coproducts, or impurities means the source from which the byproducts, coproducts, or impurities are made or introduced into the product (e.g., carryover from raw material, reaction product, etc.).

CBI

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<u>CAS No.</u>	<u>Chemical Name</u>	<u>Byproduct, Coproduct or Impurity¹</u>	<u>Concentration (%) (specify \pm % precision)</u>	<u>Source of By-products, Coproducts, or Impurities</u>
<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

¹Use the following codes to designate byproduct, coproduct, or impurity:

B = Byproduct
C = Coproduct
I = Impurity

☐ Mark (X) this box if you attach a continuation sheet.

- 2.12 Existing Product Types -- List all existing product types which you manufactured, imported, or processed using the listed substance during the reporting year. List the quantity of listed substance you use for each product type as a percentage of the total volume of listed substance used during the reporting year. Also list the quantity of listed substance used captively on-site as a percentage of the value listed under column b., and the types of end-users for each product type. (Refer to the instructions for further explanation and an example.)

CBI

☐

a.	b.	c.	d.
Product Types ¹	% of Quantity Manufactured, Imported, or Processed	% of Quantity Used Captively On-Site	Type of End-Users ²
X	100	NA	I, CM,

¹Use the following codes to designate product types:

A = Solvent	L = Moldable/Castable/Rubber and additives
B = Synthetic reactant	M = Plasticizer
C = Catalyst/Initiator/Accelerator/ Sensitizer	N = Dye/Pigment/Colorant/Ink and additives
D = Inhibitor/Stabilizer/Scavenger/ Antioxidant	O = Photographic/Reprographic chemical and additives
E = Analytical reagent	P = Electrodeposition/Plating chemicals
F = Chelator/Coagulant/Sequestrant	Q = Fuel and fuel additives
G = Cleanser/Detergent/Degreaser	R = Explosive chemicals and additives
H = Lubricant/Friction modifier/Antiwear agent	S = Fragrance/Flavor chemicals
I = Surfactant/Emulsifier	T = Pollution control chemicals
J = Flame retardant	U = Functional fluids and additives
K = Coating/Binder/Adhesive and additives	V = Metal alloy and additives
	W = Rheological modifier
	X = Other (specify) <u>PREPOLYMER</u>

²Use the following codes to designate the type of end-users:

I = Industrial	CS = Consumer
CM = Commercial	H = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

- 2.13 Expected Product Types -- Identify all product types which you expect to manufacture, import, or process using the listed substance at any time after your current corporate fiscal year. For each use, specify the quantity you expect to manufacture, import, or process for each use as a percentage of the total volume of listed substance used during the reporting year. Also list the quantity of listed substance used captively on-site as a percentage of the value listed under column b., and the types of end-users for each product type. (Refer to the instructions for further explanation and an example.)

CBI

☐

a.	b.	c.	d.
Product Types ¹	% of Quantity Manufactured, Imported, or Processed	% of Quantity Used Captively On-Site	Type of End-Users ²
X	100	NA	I, CM

¹Use the following codes to designate product types:

A = Solvent	L = Moldable/Castable/Rubber and additives
B = Synthetic reactant	M = Plasticizer
C = Catalyst/Initiator/Accelerator/ Sensitizer	N = Dye/Pigment/Colorant/Ink and additives
D = Inhibitor/Stabilizer/Scavenger/ Antioxidant	O = Photographic/Reprographic chemical and additives
E = Analytical reagent	P = Electrodeposition/Plating chemicals
F = Chelator/Coagulant/Sequestrant	Q = Fuel and fuel additives
G = Cleanser/Detergent/Degreaser	R = Explosive chemicals and additives
H = Lubricant/Friction modifier/Antiwear agent	S = Fragrance/Flavor chemicals
I = Surfactant/Emulsifier	T = Pollution control chemicals
J = Flame retardant	U = Functional fluids and additives
K = Coating/Binder/Adhesive and additives	V = Metal alloy and additives
	W = Rheological modifier
	X = Other (specify) <u>PREPOLYMERS</u>

²Use the following codes to designate the type of end-users:

I = Industrial	CS = Consumer
CM = Commercial	H = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

2.14 Final Product -- Complete the following table for each type of final product manufactured, imported, or processed at your facility that contains the listed substance other than as an impurity.

☐

a.	b.	c.	d.
Product Type ¹	Final Product's Physical Form ²	Average % Composition of Listed Substance in Final Product	Type of End-Users ³
X	LIQUID	25%	I

¹Use the following codes to designate product types:

A = Solvent	L = Moldable/Castable/Rubber and additives
B = Synthetic reactant	M = Plasticizer
C = Catalyst/Initiator/Accelerator/Sensitizer	N = Dye/Pigment/Colorant/Ink and additives
D = Inhibitor/Stabilizer/Scavenger/Antioxidant	O = Photographic/Reprographic chemical and additives
E = Analytical reagent	P = Electrodeposition/Plating chemicals
F = Chelator/Coagulant/Sequestrant	Q = Fuel and fuel additives
G = Cleanser/Detergent/Degreaser	R = Explosive chemicals and additives
H = Lubricant/Friction modifier/Antiwear agent	S = Fragrance/Flavor chemicals
I = Surfactant/Emulsifier	T = Pollution control chemicals
J = Flame retardant	U = Functional fluids and additives
K = Coating/Binder/Adhesive and additives	V = Metal alloy and additives
	W = Rheological modifier
	X = Other (specify) <u>PREPOLYMER</u>

²Use the following codes to designate the final product's physical form:

A = Gas	F2 = Crystalline solid
B = Liquid	F3 = Granules
C = Aqueous solution	F4 = Other solid
D = Paste	G = Gel
E = Slurry	H = Other (specify) _____
F1 = Powder	

³Use the following codes to designate the type of end-users:

I = Industrial	CS = Consumer
CM = Commercial	H = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

2.15 Circle all applicable modes of transportation used to deliver bulk shipments of the listed substance to off-site customers.

CBI NA

<input type="checkbox"/> Truck	1
Railcar	2
Barge, Vessel	3
Pipeline	4
Plane	5
Other (specify) _____	6

2.16 Customer Use -- Estimate the quantity of the listed substance used by your customers or prepared by your customers during the reporting year for use under each category of end use listed (i-iv).

CBI

☐ Category of End Use

i. Industrial Products

Chemical or mixture	<u>NA</u>	kg/yr
Article	<u>NA</u>	kg/yr

ii. Commercial Products

Chemical or mixture	<u>NA</u>	kg/yr
Article	<u>NA</u>	kg/yr

iii. Consumer Products

Chemical or mixture	<u>NA</u>	kg/yr
Article	<u>NA</u>	kg/yr

iv. Other

Distribution (excluding export)	<u>NA</u>	kg/yr
Export	<u>NA</u>	kg/yr
Quantity of substance consumed as reactant	<u>NA</u>	kg/yr
Unknown customer uses	<u>NA</u>	kg/yr

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 3 PROCESSOR RAW MATERIAL IDENTIFICATION

PART A GENERAL DATA

- 3.01 Specify the quantity purchased and the average price paid for the listed substance for each major source of supply listed. Product trades are treated as purchases.
 CBI The average price is the market value of the product that was traded for the listed substance.

☐

Source of Supply	Quantity (kg)	Average Price (\$/kg)
The listed substance was manufactured on-site.	NA	NA
The listed substance was transferred from a different company site.	NA	NA
The listed substance was purchased directly from a manufacturer or importer.	174,359	0.47
The listed substance was purchased from a distributor or repackager.	NA	NA
The listed substance was purchased from a mixture producer.	NA	NA

- 3.02 Circle all applicable modes of transportation used to deliver the listed substance to your facility.

CBI

☐

- Truck ①
 Railcar 2
 Barge, Vessel 3
 Pipeline 4
 Plane 5
 Other (specify) _____ 6

☐ Mark (X) this box if you attach a continuation sheet.

3.03 a. Circle all applicable containers used to transport the listed substance to your
CBI facility.

☐

Bags 1
Boxes 2
Free standing tank cylinders 3
Tank rail cars 4
Hopper cars 5
Tank trucks 6
Hopper trucks 7
Drums 8
Pipeline 9
Other (specify) 10

b. If the listed substance is transported in pressurized tank cylinders, tank rail cars, or tank trucks, state the pressure of the tanks.

Tank cylinders NA mmHg
Tank rail cars NA mmHg
Tank trucks NA mmHg

☐ Mark (X) this box if you attach a continuation sheet.

PART B RAW MATERIAL IN THE FORM OF A MIXTURE

3.04 If you obtain the listed substance in the form of a mixture, list the trade name(s) of the mixture, the name of its supplier(s) or manufacturer(s), an estimate of the average percent composition by weight of the listed substance in the mixture, and the amount of mixture processed during the reporting year.

CBI

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<u>Trade Name</u>	<u>Supplier or Manufacturer</u>	<u>Average % Composition by Weight (specify \pm % precision)</u>	<u>Amount Processed (kg/yr)</u>
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA

☐ Mark (X) this box if you attach a continuation sheet.

PART C RAW MATERIAL VOLUME

3.05 State the quantity of the listed substance used as a raw material during the reporting year in the form of a class I chemical, class II chemical, or polymer, and the percent composition, by weight, of the listed substance.

☐

	Quantity Used (kg/yr)	% Composition by Weight of Listed Sub- stance in Raw Material (specify \pm % precision)
Class I chemical	174,359	100
Class II chemical	NA	
Polymer	NA	

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 4 PHYSICAL/CHEMICAL PROPERTIES

General Instructions:

If you are reporting on a mixture as defined in the glossary, reply to questions in Section 4 that are inappropriate to mixtures by stating "NA -- mixture."

For questions 4.06-4.15, if you possess any hazard warning statement, label, MSDS, or other notice that addresses the information requested, you may submit a copy or reasonable facsimile in lieu of answering those questions which it addresses.

PART A PHYSICAL/CHEMICAL DATA SUMMARY

- 4.01 Specify the percent purity for the three major¹ technical grade(s) of the listed substance as it is manufactured, imported, or processed. Measure the purity of the substance in the final product form for manufacturing activities, at the time you import the substance, or at the point you begin to process the substance.

CBI

☐

	<u>Manufacture</u>	<u>Import</u>	<u>Process</u>
Technical grade #1	<u>NA</u> % purity	<u>NA</u> % purity	<u>100</u> % purity
Technical grade #2	<u>NA</u> % purity	<u>NA</u> % purity	<u>NA</u> % purity
Technical grade #3	<u>NA</u> % purity	<u>NA</u> % purity	<u>NA</u> % purity

¹Major = Greatest quantity of listed substance manufactured, imported or processed.

- 4.02 Submit your most recently updated Material Safety Data Sheet (MSDS) for the listed substance, and for every formulation containing the listed substance. If you possess an MSDS that you developed and an MSDS developed by a different source, submit your version. Indicate whether at least one MSDS has been submitted by circling the appropriate response.

Yes ①

No 2

Indicate whether the MSDS was developed by your company or by a different source.

Your company 1

Another source ②

☒ Mark (X) this box if you attach a continuation sheet.

MATERIAL SAFETY DATA SHEET

BASF Corporation Chemicals Division
100 Cherry Hill Road, Parsippany, New Jersey 07054, (201) 316-3000

BASF

HMIS: H4 F1 R1

PRODUCT NUMBER: 585622

LUPRANATE* T80-Type 2

SECTION I

*Registered Trademark

TRADE NAME: LUPRANATE* T80-Type 2

CHEMICAL NAME: Toluene Diisocyanate

SYNONYMS: TDI; Tolylene Diisocyanate

FORMULA: $\text{CH}_3\text{C}_6\text{H}_4(\text{NCO})_2$

CHEMICAL FAMILY: Aromatic Isocyanates

MOL. WGT.: 174.16

SECTION II - INGREDIENTS

COMPONENT	CAS NO.	%	PEL/TLV - SOURCE
LUPRANATE* T80-Type 2 Contains: 2,4 Toluene Diisocyanate	584-84-9	100 80	Not established 0.005 ppm ACGIH 0.02 ppm STEL, ACGIH 0.02 ppm Ceiling, OSHA
2,6 Toluene Diisocyanate	91-08-7	20	
SARA Title III Sect. 313: Listed. All components are in TSCA inventory.			

SECTION III - PHYSICAL DATA

BOILING/MELTING POINT @760 mm Hg: 484°F/ N/A	pH: N/A
VAPOR PRESSURE mm Hg @20 C: 0.01	Vapor Density (Air=1): 8.0
SPECIFIC GRAVITY OR BULK DENSITY: 1.22	Freezing Point: 51.8-53.6°F
SOLUBILITY IN WATER: Water Reacts	
APPEARANCE: Colorless Liquid	ODOR: Pungent
	INTENSITY: Strong

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (TEST METHOD): 270°F TAG Open Cup	AUTOIGNITION TEMP: N/A
FLAMMABILITY LIMITS IN AIR (% BY VOL)	LOWER: 0.9% UPPER: 9.5%
EXTINGUISHING MEDIUM	Use water fog, foam or CO2 extinguishing media.
SPECIAL FIREFIGHTING PROCEDURES	Personnel engaged in fighting isocyanate fires must be protected against nitrogen dioxide fumes as well as isocyanate vapors. Firefighters must wear self-contained breathing apparatus and turnout gear.
UNUSUAL FIRE AND EXPLOSION HAZARDS	Avoid water contamination in closed containers or confined areas; carbon dioxide gas is generated.

EMERGENCY TELEPHONE NUMBER

CHEMTREC 800-424-9300

201-316-3000

THIS NUMBER IS AVAILABLE DAYS, NIGHTS, WEEKENDS, AND HOLIDAYS

SECTION V - HEALTH DATA**TOXICOLOGICAL TEST DATA:**

LUPRANATE* T80
2,4 Toluene Diisocyanate

Rat, Oral LD50
Mouse, Inhalation LC50

RESULT:

Severe eye and skin
irritant, sensitizer
5.8 g/kg.
10 ppm/4H

EFFECTS OF OVEREXPOSURE:

The primary routes of exposure to this material are eye or skin contact, and inhalation.
Inhalation of the vapors causes severe irritation to lungs, and pulmonary edema can occur after a serious vapor exposure. Liquid contact causes serious skin and eye burns. Pulmonary sensitization can occur in some individuals leading to asthma-type spasms of the bronchial tubes and difficulty in breathing. Preclude from exposure those individuals having a history of respiratory illness, asthmatic conditions, eye damage or TDI sensitization. Recent studies indicate that overexposure may be associated with chronic lung impairment. In a National Toxicology Program (NTP) study, TDI was carcinogenic when given orally to rats and mice at maximum tolerated doses. TDI was not carcinogenic to rats in a two-year inhalation study. Based on the results of the oral study, TDI was included in the NTP Annual Report on Carcinogens.

FIRST AID PROCEDURES:

Existing medical conditions aggravated by exposure to this material:
Pulmonary disorders.

Eyes-Immediately wash eyes with running water for 15 minutes.
Get immediate medical attention.

Skin-Wash affected areas with water while removing contaminated clothing. Get immediate medical attention. Launder contaminated clothing before reuse.

Ingestion-If swallowed, DO NOT INDUCE VOMITING. Dilute with water or milk and get immediate medical attention. Never give fluids or induce vomiting if the victim is unconscious or having convulsions.

Inhalation-Move to fresh air. Aid in breathing, if necessary, and get immediate medical attention.

SECTION VI - REACTIVITY DATA

STABILITY: Stable.

CONDITIONS TO AVOID: Avoid temperatures >40°C for extended periods of time.

CHEMICAL INCOMPATIBILITY: Basic compounds, caustic soda, tertiaryamines, water

HAZARDOUS DECOMPOSITION PRODUCTS: TDI vapors, NOx, CO and HCN.

HAZARDOUS POLYMERIZATION: May occur. Avoid contamination with moisture
CONDITIONS TO AVOID: and other products that react with isocyanates.

CORROSIVE TO METAL: No

OXIDIZER: No

SECTION VII - SPECIAL PROTECTION**RESPIRATORY PROTECTION:**

Approved respirator for transferring operations or escape.
Self-contained breathing apparatus if the P.E.L. is exceeded, or in confined areas or if a leak occurs.

EYE PROTECTION: Wear fitted goggles or face shield and safety glasses.

PROTECTIVE CLOTHING: Rubber gloves, coveralls, boots and rubber apron which must be cleaned after each use.

VENTILATION: Use local exhaust wherever vapors are generated.

OTHER: Maintain work area below P.E.L.

PRODUCT NUMBER: 585622

LUPRANATE* T80-Type 2

SECTION VIII - ENVIRONMENTAL DATA**ENVIRONMENTAL TOXICITY DATA:**

Aquatic toxicity rating: TLm 96: 10 ppm-1 ppm.

SPILL AND LEAK PROCEDURES:

LUPRANATE* T80 is a RCRA-regulated product. Wear protective clothing, evacuate all not involved in the cleanup. For minor spills, absorb with absorbent and containerize into open top drums. Decontaminate spill area with a mixture of 90% water, 8% concentrated ammonia and 2% detergent. Dispose of

HAZARDOUS SUBSTANCE SUPERFUND: Yes RQ (lbs): 100**WASTE DISPOSAL METHOD:**

waste in a RCRA-permitted facility.
Incinerate or landfill in a RCRA-permitted facility.

HAZARDOUS WASTE 40CFR261: Yes**HAZARDOUS WASTE NUMBER:** U 223**CONTAINER DISPOSAL:**

Containers should be neutralized with liquid decontaminant. Empty containers, containing less than 1" of residue, may be landfilled. If containers are not empty, they must be disposed as a hazardous waste in a RCRA-licensed facility.

SECTION IX - SHIPPING DATA**D.O.T. PROPER SHIPPING NAME (49CFR172.101-102)**

Toluene Diisocyanate

**HAZARDOUS SUBSTANCE
(49CFR CERCLA LIST)**

Yes--TDI

REPORTABLE QUANTITY (RQ) 100 lb**D.O.T. HAZARD CLASSIFICATION (CFR172.101-102)****PRIMARY**

Poison B

SECONDARY**D.O.T. LABELS REQUIRED (49CFR172.101-102)**

Poison

**D.O.T. PLACARDS
REQUIRED (CFR172.504)****BULK ONLY
Poison2078****POISON CONSTITUENT
(49CFR172.203(K))**
TDI**BILL OF LADING DESCRIPTION**

Toluene Diisocyanate-Poison B-UN 2078 RQ 100 lbs.
*** Placarded: POISON ***

CC NO. 190**UN/NA CODE**2078**DATE PREPARED:** 4 / 17 / 88**UPDATED:** 5 / 16 / 88

WHILE BASF CORPORATION BELIEVES THE DATA SET FORTH HEREIN ARE ACCURATE AS OF THE DATE HEREOF, BASF CORPORATION MAKES NO WARRANTY WITH RESPECT THERETO AND EXPRESSLY DISCLAIMS ALL LIABILITY FOR RELIANCE THEREON. SUCH DATA ARE OFFERED SOLELY FOR YOUR CONSIDERATION, INVESTIGATION, AND VERIFICATION.

SECTION X - PRODUCT LABEL**LUPRANATE* T80****DANGER: POISON****HARMFUL IF INHALED.**

CONTACT WITH EYES AND SKIN RESULTS IN SERIOUS BURNS. INHALATION OF VAPORS CAUSES SEVERE IRRITATION TO LUNGS. PULMONARY EDEMA MAY OCCUR. PULMONARY SENSITIZATION CAN OCCUR IN SOME INDIVIDUALS, LEADING TO ASTHMA-TYPE SPASMS OF THE BRONCHIAL TUBES AND DIFFICULTY IN BREATHING. INDIVIDUALS WITH A HISTORY OF RESPIRATORY ILLNESS, ASTHMATIC CONDITIONS, EYE DAMAGE OR TDI SENSITIZATION SHOULD NOT BE EXPOSED TO THIS PRODUCT.

IN AN NTP STUDY, TDI WAS CARCINOGENIC TO RODENTS GIVEN HIGH ORAL DOSES AND IS INCLUDED IN THE NTP ANNUAL REPORT ON CARCINOGENS. TDI WAS NOT CARCINOGENIC TO RATS IN A TWO-YEAR INHALATION STUDY.

Use with local exhaust. Wear an approved respirator or self-contained breathing apparatus, fitted goggles or face shield and safety glasses, rubber gloves, coveralls, boots, apron and other protective clothing as necessary to prevent contact.

FIRST AID:

Eyes-Immediately wash eyes with running water for 15 minutes.

Get immediate medical attention.

Skin-Wash affected areas with water while removing contaminated clothing. Get immediate medical attention. Launder contaminated clothing before reuse.

Ingestion-If swallowed, DO NOT INDUCE VOMITING. Dilute with water or milk and get immediate medical attention. Never give fluids or induce vomiting if the victim is unconscious or having convulsions.

Inhalation-Move to fresh air. Aid in breathing, if necessary, and get immediate medical attention.

HANDLING AND STORAGE: Keep containers closed and store in a well-ventilated place. Outage of container should be filled with dry inert gas at atmospheric pressure to avoid reaction with moisture. Contamination by moisture or basic compounds can cause dangerous pressure buildup in closed container. Store above 60 F to prevent freezing and isomer separation. If solidified, do not exceed 95 F while thawing to prevent discoloration. Mix before using.

IN CASE OF SPILLS OR LEAKS: Material is a RCRA-regulated product. Spills should be contained, absorbed and placed in suitable containers for disposal in a RCRA-licensed facility.

IN CASE OF FIRE: Use water fog, foam or CO2 extinguishing media. Firefighters should be equipped with self-contained breathing apparatus and turnout gear for protection against TDI vapors and toxic decomposition products.

EMPTY CONTAINERS: All labeled precautions must be observed when handling, storing and transporting empty containers due to product residues. Do not reuse this container unless it is professionally cleaned and reconditioned.

DISPOSAL: Spilled material, unused contents and empty containers must be disposed of in accordance with local, state and federal regulations. Refer to our Material Safety Data Sheet for specific disposal instructions.

IN CASE OF CHEMICAL EMERGENCY: Call CHEMTREC day or night for assistance and information concerning spilled material, fire, exposure and other chemical accidents 800-424-9300.

ATTENTION: This product is sold solely for use by industrial institutions. Refer to our Technical Bulletin and Material Safety Data Sheet regarding safety, usage, applications, hazards, procedures and disposal of this product. Consult your supervisor for additional information.

FOR INDUSTRY USE ONLY.

CAS No.: 584-84-9; 91-08-7.

Proper Shipping Name: Toluene Diisocyanate, Poison B - UN 2078 RQ

Made in USA.

Polymers

0488

SECTION 4 PHYSICAL/CHEMICAL PROPERTIES

General Instructions:

If you are reporting on a mixture as defined in the glossary, reply to questions in Section 4 that are inappropriate to mixtures by stating "NA -- mixture."

For questions 4.06-4.15, if you possess any hazard warning statement, label, MSDS, or other notice that addresses the information requested, you may submit a copy or reasonable facsimile in lieu of answering those questions which it addresses.

PART A PHYSICAL/CHEMICAL DATA SUMMARY

- 4.01 Specify the percent purity for the three major¹ technical grade(s) of the listed substance as it is manufactured, imported, or processed. Measure the purity of the substance in the final product form for manufacturing activities, at the time you import the substance, or at the point you begin to process the substance.

CBI

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	<u>Manufacture</u>	<u>Import</u>	<u>Process</u>
Technical grade #1	_____ % purity	_____ % purity	_____ % purity
Technical grade #2	_____ % purity	_____ % purity	_____ % purity
Technical grade #3	_____ % purity	_____ % purity	_____ % purity

¹Major = Greatest quantity of listed substance manufactured, imported or processed.

- 4.02 Submit your most recently updated Material Safety Data Sheet (MSDS) for the listed substance, and for every formulation containing the listed substance. If you possess an MSDS that you developed and an MSDS developed by a different source, submit your version. Indicate whether at least one MSDS has been submitted by circling the appropriate response.

Yes (1)
No 2

Indicate whether the MSDS was developed by your company or by a different source.

Your company (1)
Another source 2

☐ Mark (X) this box if you attach a continuation sheet.



Product Common Name Andur 9000-AS/Part A

Effective Date May 23, 1989

Material Safety Data Sheet

HAZARD RATING		FIRE		REACTIVITY	
4=EXTREME		1		2	
3=HIGH		3			
2=MODERATE					
1=SLIGHT					
0=INSIGNIFICANT					
•=SEE SECTION IV					
		TOXICITY		SPECIAL	
		-W-			

Components subject to SARA Title III Section 313 reporting are identified on the third page along with typical percents.

TRANSPORTATION EMERGENCY: CALL CHEMTREC

ANDERSON DEVELOPMENT EMERGENCY

TELEPHONE NUMBER: (800) 424-9300

TELEPHONE NUMBER: (517) 263-2121

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STD.)

SECTION I IDENTIFICATION

PRODUCT NAME:	Andur 9000-AS/Part A		
CHEMICAL NAME:	Isocyanate Terminated Prepolymer	CHEMICAL FAMILY:	Diisocyanate
FORMULA:	Polymeric	T.S.C.A. STATUS:	Yes 1980
SYNONYMS:	Aromatic Diisocyanates		
DEPARTMENT OF TRANSPORTATION	HAZARD CLASSIFICATION	Poison B	
	SHIPPING NAME	Poison B, Liquid, N.O.S. UN 2810	
CAS # Not Applicable	CAS NAME	Isocyanate Terminated Prepolymer	

SECTION II HAZARDOUS COMPONENTS

MATERIAL	%	TLV (Units)	HAZARD
2,4-2,6 Toluene Diisocyanate	25	See Section VII	Poison B
(CAS #26471-62-5)			

SECTION III PHYSICAL DATA

Melting point	Not Known	Specific Gravity (H ₂ O = 1)	1.07 ±0.05
Boiling point	Above 450°F	Solubility in H ₂ O, % by WT	Reacts
Vapor pressure	0.0003 @ 20°C	% Volatiles by Volume	<2
Vapor Density (Air - 1)	6	Evaporation rate (butyl acetate = 1)	0 - Reacts Air Humidity
Room temperature: appearance & state	Light Yellow Liquid	pH (as is)	Not Applicable
Odor	Strong Pungent	pH (1% solution)	Not Applicable

MSDS # 0070

SECTION IV FIRE AND EXPLOSION DATA

Flash point 325 °F (COC)	Flammable Limits (air)	Upper Not Known
Autoignition temp. Not Known		Lower Not Known
Extinguishing media <input checked="" type="checkbox"/> Water <input checked="" type="checkbox"/> Water Fog <input checked="" type="checkbox"/> CO ₂ <input checked="" type="checkbox"/> Dry Chemical <input type="checkbox"/> Other _____		
Special fire fighting procedures Highly toxic gases. Wear self-contained breathing apparatus.		
Degree of fire and explosion hazard Slight chance of initiating fire. High risk fire fighting. Closed containers may explode from extreme heat or water contamination.		
<input checked="" type="checkbox"/> Stable <input type="checkbox"/> Unstable <input type="checkbox"/> Hazardous Polymerization <input type="checkbox"/> May Occur <input checked="" type="checkbox"/> Will Not Occur		
Conditions to Avoid High temperatures.		
Major contaminants that may contribute to instability See Incompatibility.		
Incompatibility Water, Alcohols, Amines, Alkali, Metal Compounds, Surfactants		
Hazardous decomposition products Traces of Hydrogen Cyanide, Carbon Dioxide, Carbon Monoxide, Nitrogen Oxides, Monomeric Isocyanate.		

SECTION V SPECIAL PROTECTION

Ventilation requirements	Local to maintain vapor conc. below TLV.
Recommended personal protective equipment:	See specifics below.
Respiratory (Specify conditions)	Above TLV: Canister (organic). High Conc.: Self-Contained (air).
Eyes	Safety glasses. Contact lenses should not be worn.
Gloves	Chemical resistant rubber or plastic.
Special clothing and equipment	Safety showers, eye-wash.

SECTION VI SPILL CONTROL

Procedure for release or spill	Evacuate non-essential personnel (toxic vapors). Ventilate area and cover spill with absorbent. Decontaminate with a dilute base. Collect material in open containers and treat with additional base.
Waste disposal method	In accordance with Federal, State and Local Regulations. Prior to disposal, decontaminate empty containers due to product residue.
Neutralizing chemicals	Dilute base preferably a solution of 10% ammonium hydroxide in water.

SECTION VII HEALTH EFFECTS DATA

TLV AND SOURCE: Occupational exposure to 2,4 Toluene Diisocyanate TWA = 0.005 ppm STEL = 0.02 ppm OSHA 29 CFR 1910.0 "Z" Table as amended.	
ACUTE EFFECTS OF OVEREXPOSURE	In an NTP study, TDI was carcinogenic to rodents given high oral doses. TDI was not carcinogenic to rats in a two year inhalation study.
SWALLOWING	Isocyanate. Oral Rat-LD ₅₀ : 5800 mg/kg.
SKIN ABSORPTION	Allergic Dermatitis including rash, itching, hives and swelling.
INHALATION	Isocyanate injurious to lungs and pulmonary edema may occur.
SKIN CONTACT	Irritation and itching.
EYE CONTACT	Monomer isocyanate eye rbt 100 mg. Severe damage. Watering of eyes.
CHRONIC EFFECTS OF OVEREXPOSURE	Extreme sensitivity may result.
OTHER HEALTH HAZARDS	Allergic reaction in some individuals.
EMERGENCY AND FIRST AID PROCEDURES:	
SWALLOWING	See physician immediately.
SKIN	Remove contaminated clothing. Wash affected area with soap and water.
INHALATION	Move from area of exposure. Administer oxygen.
EYES	Eyewash flush - see physician.

S A R A TITLE III SECTION 313

<u>COMPONENT(S)</u>	<u>TYPICAL PERCENT(S)</u>
2,4 Toluene Diisocyanate (CAS #584-84-9)	20
2,6 Toluene Diisocyanate (CAS #91-08-7)	5

ALTHOUGH THE INFORMATION AND RECOMMENDATIONS SET FORTH HEREIN (HEREINAFTER "INFORMATION") ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE CORRECT AS OF THE DATE HEREOF, ANDERSON DEVELOPMENT COMPANY MAKES NO REPRESENTATIONS AS TO THE COMPLETENESS OR ACCURACY THEREOF. INFORMATION IS SUPPLIED UPON THE CONDITION THAT PERSONS RECEIVING SAME WILL MAKE THEIR OWN DETERMINATION AS TO ITS SUITABILITY FOR THEIR PURPOSES PRIOR TO USE. IN NO EVENT WILL ANDERSON DEVELOPMENT COMPANY BE RESPONSIBLE FOR DAMAGES OF ANY NATURE WHATSOEVER RESULTING FROM THE USE OF OR RELIANCE UPON INFORMATION. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.



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Anderson
Development Company

Product Common Name Andur - Type I

Effective Date May 23, 1989

Material Safety Data Sheet

Components subject to SARA Title III Section 313 reporting are identified on the third page along with typical percents.

HAZARD RATING 4=EXTREME 3=HIGH 2=MODERATE 1=SLIGHT 0=INSIGNIFICANT •=SEE SECTION IV		<div style="display: flex; align-items: center; justify-content: center;"><div style="text-align: center;">FIRE 2</div><div style="text-align: center;">1 1 -W</div><div style="text-align: center;">REACTIVITY 1 SPECIAL</div></div>
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TRANSPORTATION EMERGENCY: CALL CHEMTREC

ANDERSON DEVELOPMENT EMERGENCY

TELEPHONE NUMBER: (800) 424-9300

TELEPHONE NUMBER: (517) 263-2121

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STD.)

SECTION I IDENTIFICATION

PRODUCT NAME:	Andur Prepolymer (-AP, -DP, -APF, -APFLM, 3300 AS (Part A))		
CHEMICAL NAME:	Isocyanate Terminated Prepolymer	CHEMICAL FAMILY:	Diisocyanate
FORMULA:	Polymeric	T.S.C.A. STATUS:	Yes 1980
SYNONYMS:	Aromatic Diisocyanates		
DEPARTMENT OF TRANSPORTATION	HAZARD CLASSIFICATION	Not Regulated	
	SHIPPING NAME	Plastic Material Liquid, NOI	
CAS # Not Applicable	CAS NAME	This MSDS Represents Various Diisocyanates	

SECTION II HAZARDOUS COMPONENTS

MATERIAL	%	TLV (Units)	HAZARD
2,4-2,6 Toluene Diisocyanate	1.5	See Section VII	Poison B
(CAS #26471-62-5)			

SECTION III PHYSICAL DATA

Melting point	Not Known	Specific Gravity (H ₂ O = 1)	1.07 ±0.05
Boiling point	Above 450°F	Solubility in H ₂ O, % by WT	Reacts
Vapor pressure	0.0003 @20°C	% Volatiles by Volume	<2
Vapor Density (Air - 1)	6	Evaporation rate (butyl acetate = 1)	0 - Reacts Air Humidity
Room temperature: appearance & state	Light Yellow Liquid	pH (as is)	Not Applicable
Odor	Slight Isocyanate	pH (1% solution)	Not Applicable

MSDS # 0003

SECTION IV FIRE AND EXPLOSION DATA

Flash point 325°F (COC)	Flammable Limits (air)	Upper	Not Known
Autoignition temp. Not Known		Lower	Not Known
Extinguishing media <input checked="" type="checkbox"/> Water <input checked="" type="checkbox"/> Water Fog <input checked="" type="checkbox"/> CO ₂ <input checked="" type="checkbox"/> Dry Chemical <input type="checkbox"/> Other _____			
Special fire fighting procedures Highly toxic gases. Wear self-contained breathing apparatus.			
Degree of fire and explosion hazard Slight chance of initiating fire. High risk fire fighting. Closed containers may explode from extreme heat or water contamination.			
<input checked="" type="checkbox"/> Stable <input type="checkbox"/> Unstable		Hazardous Polymerization <input type="checkbox"/> May Occur <input checked="" type="checkbox"/> Will Not Occur	
Conditions to Avoid High temperatures.			
Major contaminates that may contribute to instability See Incompatibility.			
Incompatibility Water, Alcohols, Amines, Alkali, Metal Compounds, Surfactants			
Hazardous decomposition products Traces of Hydrogen Cyanide, Carbon Dioxide, Carbon Monoxide, Nitrogen Oxides, Monomeric Isocyanate			

SECTION V SPECIAL PROTECTION

Ventilation requirements	Local to maintain vapor conc. below TLV.
Recommended personal protective equipment:	See specifics below.
Respiratory (Specify conditions)	Above TLV: Canister (organic). High Conc.: Self-Contained (air).
Eyes	Safety Glasses. Contact lenses should not be worn.
Gloves	Chemical resistant rubber or plastic.
Special clothing and equipment	Safety showers, eye-wash.

SECTION VI SPILL CONTROL

Procedure for release or spill	Evacuate non-essential personnel (toxic vapors). Ventilate area and cover spill with absorbent. Decontaminate with a dilute base. Collect material in open containers and treat with additional base.
Waste disposal method	In accordance with Federal, State and Local Regulations. Prior to disposal, decontaminate empty containers due to product residue.
Neutralizing chemicals	Dilute base preferably a solution of 10% ammonium hydroxide in water.

SECTION VII HEALTH EFFECTS DATA

Occupational exposure to 2,4 Toluene Diisocyanate TLV AND SOURCE: TWA = 0.005 ppm STEL = 0.02 ppm OSHA 29 CFR 1910.1 "Z" Table as amended.	
ACUTE EFFECTS OF OVEREXPOSURE	In an NTP study, TDI was carcinogenic to rodents given high oral doses. TDI was <u>not</u> carcinogenic to rats in a two year inhalation study. Isocyanate.
SWALLOWING	Oral Rat-LD ₅₀ : 5800 mg/kg.
SKIN ABSORPTION	Allergic Dermatitis including rash, itching, hives and swelling.
INHALATION	Isocyanate injurious to lungs and pulmonary edema may occur.
SKIN CONTACT	Irritation and itching.
EYE CONTACT	Monomer isocyanate eye rbt 100 mg. Severe damage. Watering of eyes.
CHRONIC EFFECTS OF OVEREXPOSURE	Extreme sensitivity may result.
OTHER HEALTH HAZARDS	Allergic reaction in some individuals.
EMERGENCY AND FIRST AID PROCEDURES:	
SWALLOWING	See Physician Immediately.
SKIN	Remove contaminated clothing. Wash affected area with soap and water.
INHALATION	Move from area of exposure. Administer oxygen.
EYES	Eyewash flush - see Physician.

S A R A TITLE III SECTION 313

<u>COMPONENT(S)</u>	<u>TYPICAL PERCENT(S)</u>
2,4 Toluene Diisocyanate (CAS #584-84-9)	1.0
2,6 Toluene Diisocyanate (CAS #91-08-7)	0.5

ALTHOUGH THE INFORMATION AND RECOMMENDATIONS SET FORTH HEREIN (HEREINAFTER "INFORMATION") ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE CORRECT AS OF THE DATE HEREOF, ANDERSON DEVELOPMENT COMPANY MAKES NO REPRESENTATIONS AS TO THE COMPLETENESS OR ACCURACY THEREOF. INFORMATION IS SUPPLIED UPON THE CONDITION THAT PERSONS RECEIVING SAME WILL MAKE THEIR OWN DETERMINATION AS TO ITS SUITABILITY FOR THEIR PURPOSES PRIOR TO USE. IN NO EVENT WILL ANDERSON DEVELOPMENT COMPANY BE RESPONSIBLE FOR DAMAGES OF ANY NATURE WHATSOEVER RESULTING FROM THE USE OF OR RELIANCE UPON INFORMATION. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.



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4.03 Submit a copy or reasonable facsimile of any hazard information (other than an MSDS) that is provided to your customers/users regarding the listed substance or any formulation containing the listed substance. Indicate whether this information has been submitted by circling the appropriate response.

Yes ①

No 2

4.04 For each activity that uses the listed substance, circle all the applicable number(s) corresponding to each physical state of the listed substance during the activity listed. Physical states for importing and processing activities are determined at the time you import or begin to process the listed substance. Physical states for manufacturing, storage, disposal and transport activities are determined using the final state of the product.

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Activity	Physical State				
	Solid	Slurry	Liquid	Liquified Gas	Gas
Manufacture	1	2	3	4	5
Import	1	2	3	4	5
Process	1	2	③	4	5
Store	1	2	③	4	5
Dispose	①	2	③	4	5
Transport	①	2	③	4	5

☐ Mark (X) this box if you attach a continuation sheet.

ANDUR ALL TYPES

PLASTIC MATERIAL LIQUID, N.O.I.

NET WT. EXAMPLE

LOT NO. EXAMPLE

1
2
1
REACTIVITY

SPECIAL

0=INSIGNIFICANT
1=SLIGHT 3=HIGH
2=MODERATE 4=EXTREME

2 NCO: XXXXX

PASSED QC #: XXXXX

PRECAUTIONARY MEASURES:

DO NOT HEAT CLOSED CONTAINER!

AVOID MOISTURE CONTAMINATION!

MAY CAUSE DAMAGE TO EYES!

ALLERGIC SENSITIVITY IN SOME INDIVIDUALS!

CAUTION:

AVOID BREATHING VAPORS OR MIST. AVOID CONTACT WITH EYES, SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING. STORE IN COOL, DRY PLACE. USE WITH ADEQUATE VENTILATION! KEEP CONTAINER CLOSED. IN AN NTP STUDY, TDI WAS CARCINOGENIC TO RODENTS GIVEN HIGH ORAL DOSES AND IS INCLUDED IN THE NTP ANNUAL REPORT ON CARCINOGENS. TDI WAS NOT CARCINOGENIC TO RATS IN A TWO-YEAR INHALATION STUDY.

EMPTY CONTAINER - HAZARDOUS! DO NOT CUT WITH TORCH!
Empty containers may contain Product residue (vapors and/or liquids) and can be hazardous. Observe all label Precautions!
Do not reuse if not thoroughly cleaned.

IN CASE OF EMERGENCY CONCERNING THIS CHEMICAL DURING SHIPMENT CALL COLLECT:

FIRST AID:

SWALLOWING: SEE A PHYSICIAN. SKIN WASH WITH SOAP AND WATER. INHALATION: REMOVE TO FRESH AIR, ADMINISTER ARTIFICIAL RESPIRATION IF NOT BREATHING, OXYGEN IF BREATHING IS DIFFICULT. SEE A PHYSICIAN. EYES: FLUSH WITH WATER FOR 15 MINUTES. RETRACT EYELIDS OFTEN. OBTAIN MEDICAL ATTENTION.

FOR FIRE:

EXTINGUISHING MEDIA: DRY CHEMICAL POWDER, CARBON DIOXIDE AND WATER SPRAY. PRECAUTIONS: HIGHLY TOXIC DECOMPOSITION GASES! WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE TURNOUT CLOTHING! CLOSED CONTAINERS MAY EXPLODE FROM EXPOSURE TO EXCESSIVE HEAT OR BY WATER CONTAMINATION!

CONSULT ANDERSON DEVELOPMENT COMPANY MSDS SHEET # 0003 FOR MORE DETAILED INFORMATION.

ANDERSON (517) 263-2121 / AFTER 5:00 PM EST (517) 263-2507
OR CALL CHEMTREC ANYTIME DAY OR NIGHT AT (800) 424-9300

Anderson Development Company

1415 East Michigan Street, Adrian, MI 49221-3499
(517) 263-2121 TWX 510-450-2890

ANDUR 9000 AS PART A

POISON B, LIQUID, N.O.S. UN2810

NET WT. EXAMPLE

LOT NO. EXAMPLE

1

3

2

REACTIVITY

SPECIAL

0=INSIGNIFICANT

1=SLIGHT

3=HIGH

2=MODERATE

4=EXTREME

% NCO: XXXXX

PASSED QC #: XXXXX

DANGER: HAZARDOUS LIQUID AND VAPOR!

DO NOT HEAT CLOSED CONTAINER! AVOID MOISTURE
CONTAMINATION! MAY CAUSE DAMAGE TO EYES!
ALLERGIC SENSITIVITY IN SOME INDIVIDUALS!
ALLERGIC SENSITIVITY IN SOME INDIVIDUALS!

CAUTION: AVOID BREATHING VAPORS OR MIST. AVOID CONTACT
WITH EYES, SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING.
STORE IN COOL, DRY PLACE. USE WITH ADEQUATE VENTILATION!
KEEP CONTAINER CLOSED. IN AN NTP STUDY, TDI WAS CARCINOGENIC TO
RODENTS GIVEN HIGH ORAL DOSES AND IS INCLUDED IN THE NTP ANNUAL REPORT
ON CARCINOGENS. TDI WAS NOT CARCINOGENIC TO RATS IN A TWO-YEAR
INHALATION STUDY.

EMPTY CONTAINER - HAZARDOUS! DO NOT CUT WITH TORCH!
Empty containers may contain product residue (vapors and/or
liquids) and can be hazardous. Observe all label precautions!
Do not reuse if not thoroughly cleaned.

IN CASE OF EMERGENCY CONCERNING THIS CHEMICAL DURING SHIPMENT CALL COLLECT:

FIRST AID: SWALLOWING: SEE A PHYSICIAN. SKIN
WASH WITH SOAP AND WATER. INHALATION: REMOVE TO FRESH
AIR. ADMINISTER ARTIFICIAL RESPIRATION IF NOT
BREATHING. OXYGEN IF BREATHING IS DIFFICULT. SEE A
PHYSICIAN. EYES: FLUSH WITH WATER FOR 15 MINUTES.
RETRACT EYELIDS OFTEN. OBTAIN MEDICAL ATTENTION.

FOR FIRE: EXTINGUISHING MEDIA: DRY CHEMICAL
POWDER, CARBON DIOXIDE AND WATER SPRAY. PRECAUTIONS:
HIGHLY TOXIC DECOMPOSITION GASES! WEAR SELF-CONTAINED
BREATHING APPARATUS AND PROTECTIVE TURNOUT CLOTHING!
CLOSED CONTAINERS MAY EXPLODE FROM EXPOSURE TO EXCESSIVE
HEAT OR BY WATER CONTAMINATION!

CONSULT ANDERSON DEVELOPMENT COMPANY MSDS SHEET # 0070
FOR MORE DETAILED INFORMATION.

ANDERSON (517) 263-2121 / AFTER 5:00 PM EST (517) 263-2507
OR CALL CHEMTREC ANYTIME DAY OR NIGHT AT (800) 424-9300

Anderson Development Company

1415 East Michigan Street, Adrian, MI 49221-3499
(517) 263-2121 TWX 510-450-2890

4.05 Particle Size -- If the listed substance exists in particulate form during any of the following activities, indicate for each applicable physical state the size and the percentage distribution of the listed substance by activity. Do not include particles ≥ 10 microns in diameter. Measure the physical state and particle sizes for importing and processing activities at the time you import or begin to process the listed substance. Measure the physical state and particle sizes for manufacturing storage, disposal and transport activities using the final state of the product.

CBI

☐

<u>Physical State</u>		<u>Manufacture</u>	<u>Import</u>	<u>Process</u>	<u>Store</u>	<u>Dispose</u>	<u>Transport</u>
Dust	<1 micron	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
	1 to <5 microns	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
	5 to <10 microns	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Powder	<1 micron	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
	1 to <5 microns	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
	5 to <10 microns	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Fiber	<1 micron	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
	1 to <5 microns	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
	5 to <10 microns	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Aerosol	<1 micron	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
	1 to <5 microns	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
	5 to <10 microns	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>

☐ Mark (X) this box if you attach a continuation sheet.

5.07 List the bioconcentration factor (BCF) of the listed substance, the species for which it was determined, and the type of test used in deriving the BCF.

Bioconcentration Factor

Species

Test¹

NA

NA

NA

NA

NA

NA

NA

NA

NA

¹Use the following codes to designate the type of test:

F = Flowthrough

S = Static

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 5 ENVIRONMENTAL FATE

PART A RATE CONSTANTS AND TRANSFORMATION PRODUCTS

5.01 Indicate the rate constants for the following transformation processes.

a. Photolysis:

Absorption spectrum coefficient (peak) NA (1/M cm) at NA nm
 Reaction quantum yield, ϕ NA at NA nm
 Direct photolysis rate constant, k_p , at ... NA 1/hr NA latitude

b. Oxidation constants at 25°C:

For 1O_2 (singlet oxygen), k_{ox} NA 1/M hr
 For RO_2 (peroxy radical), k_{ox} NA 1/M hr

c. Five-day biochemical oxygen demand, BOD_5 ... NA mg/l

d. Biotransformation rate constant:

For bacterial transformation in water, k_b ... NA 1/hr
 Specify culture NA

e. Hydrolysis rate constants:

For base-promoted process, k_b NA 1/M hr
 For acid-promoted process, k_A NA 1/M hr
 For neutral process, k_N NA 1/hr

f. Chemical reduction rate (specify conditions) NA

g. Other (such as spontaneous degradation) ... NA

☐ Mark (X) this box if you attach a continuation sheet.

PART B PARTITION COEFFICIENTS

5.02 a. Specify the half-life of the listed substance in the following media.

<u>Media</u>	<u>Half-life (specify units)</u>
Groundwater	<u>NA</u>
Atmosphere	<u>NA</u>
Surface water	<u>NA</u>
Soil	<u>NA</u>

b. Identify the listed substance's known transformation products that have a half-life greater than 24 hours.

<u>CAS No.</u>	<u>Name</u>	<u>Half-life (specify units)</u>		<u>Media</u>
<u>NA</u>	<u>NA</u>	<u>NA</u>	in	<u>NA</u>
<u>NA</u>	<u>NA</u>	<u>NA</u>	in	<u>NA</u>
<u>NA</u>	<u>NA</u>	<u>NA</u>	in	<u>NA</u>
<u>NA</u>	<u>NA</u>	<u>NA</u>	in	<u>NA</u>

5.03 Specify the octanol-water partition coefficient, K_{ow} ... NA at 25°C

Method of calculation or determination NA

5.04 Specify the soil-water partition coefficient, K_d NA at 25°C

Soil type NA

5.05 Specify the organic carbon-water partition coefficient, K_{oc} NA at 25°C

5.06 Specify the Henry's Law Constant, H NA atm-m³/mole

☐ Mark (X) this box if you attach a continuation sheet.

6.04 For each market listed below, state the quantity sold and the total sales value of the listed substance sold or transferred in bulk during the reporting year.

☐

<u>Market</u>	<u>Quantity Sold or Transferred (kg/yr)</u>	<u>Total Sales Value (\$/yr)</u>
Retail sales	<u>NA</u>	<u>NA</u>
Distribution -- Wholesalers	<u>NA</u>	<u>NA</u>
Distribution -- Retailers	<u>NA</u>	<u>NA</u>
Intra-company transfer	<u>NA</u>	<u>NA</u>
Repackagers	<u>NA</u>	<u>NA</u>
Mixture producers	<u>NA</u>	<u>NA</u>
Article producers	<u>NA</u>	<u>NA</u>
Other chemical manufacturers or processors	<u>NA</u>	<u>NA</u>
Exporters	<u>NA</u>	<u>NA</u>
Other (specify)		
<u>NA</u>	<u>NA</u>	<u>NA</u>

6.05 Substitutes -- List all known commercially feasible substitutes that you know exist for the listed substance and state the cost of each substitute. A commercially feasible substitute is one which is economically and technologically feasible to use in your current operation, and which results in a final product with comparable performance in its end uses.

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<u>Substitute</u>	<u>Cost (\$/kg)</u>
<u>NONE</u>	<u>NA</u>
<u>NA</u>	<u>NA</u>
<u>NA</u>	<u>NA</u>

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 7 MANUFACTURING AND PROCESSING INFORMATION

General Instructions:

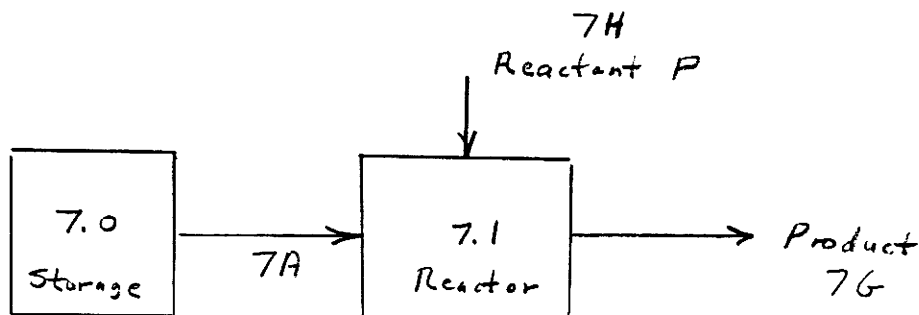
For questions 7.04-7.06, provide a separate response for each process block flow diagram provided in questions 7.01, 7.02, and 7.03. Identify the process type from which the information is extracted.

PART A MANUFACTURING AND PROCESSING PROCESS TYPE DESCRIPTION

7.01 In accordance with the instructions, provide a process block flow diagram showing major (greatest volume) process type involving the listed substance.

CBI

☐ Process type PREPOLYMER MANUFACTURE

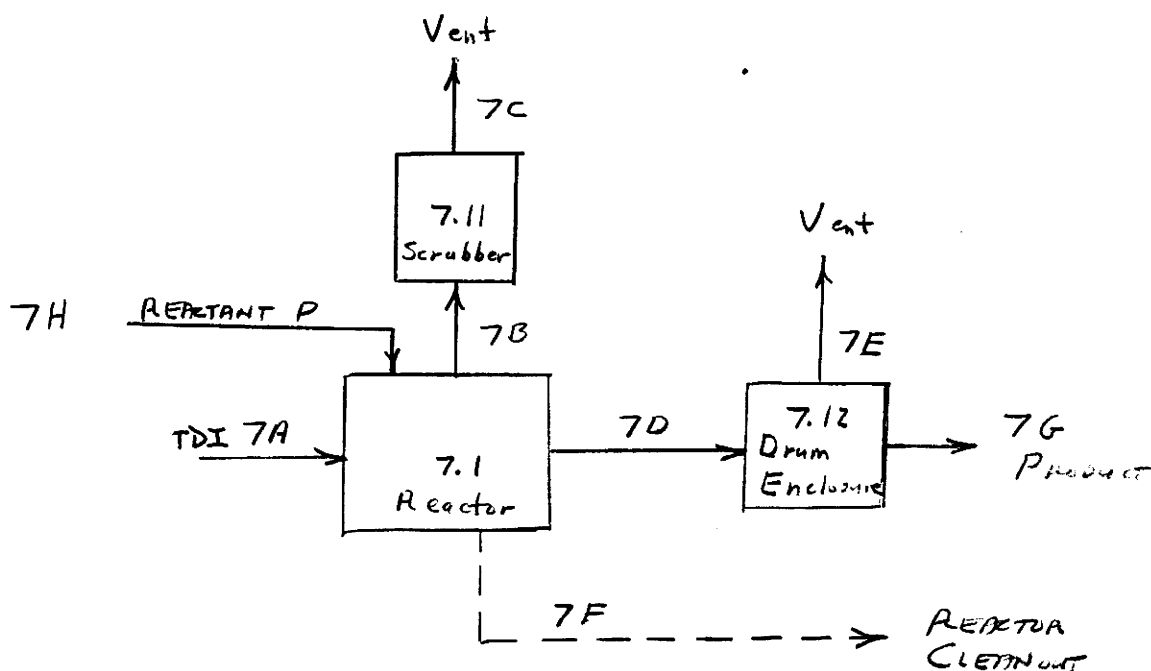


☐ Mark (X) this box if you attach a continuation sheet.

- 7.03 In accordance with the instructions, provide a process block flow diagram showing process emission streams and emission points that contain the listed substance and which, if combined, would total at least 90 percent of all facility emissions if not treated before emission into the environment. If all such emissions are released from one process type, provide a process block flow diagram using the instructions for question 7.01. If all such emissions are released from more than one process type, provide a process block flow diagram showing each process type as a separate block.

CBI

☐ Process type PREPOLYMER MANUFACTURE



☐ Mark (X) this box if you attach a continuation sheet.

- 7.04 Describe the typical equipment types for each unit operation identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type.

CBI

☐ Process type PREPOLYMER MANUFACTURE

Unit Operation ID Number	Typical Equipment Type	Operating Temperature Range (°C)	Operating Pressure Range (mm Hg)	Vessel Composit
<u>7.1</u>	<u>Reactor</u>	<u>20 - 100 °C</u>	<u>90 - 760 mm</u>	<u>316SS</u>
<u>7.11</u>	<u>Scrubber</u>	<u>20 - 30</u>	<u>760</u>	<u>Fe</u>
<u>7.12</u>	<u>Enclosure</u>	<u>20 - 30</u>	<u>760</u>	<u>Fe</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

☐ Mark (X) this box if you attach a continuation sheet.

- 7.05 Describe each process stream identified in your process block flow diagram(s). If process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type.

CBI

☐ Process type PREFORMER MANUFACTURE

Process Stream ID Code	Process Stream Description	Physical State ¹	Stream Flow (kg/y)
<u>7A</u>	<u>METERED FEED</u>	<u>OL</u>	<u>174,350</u>
<u>7G</u>	<u>PRODUCT</u>	<u>OL</u>	<u>690,461</u>
<u>7B</u>	<u>REACTOR VENT</u>	<u>GU</u>	<u>1046</u>
<u>7C</u>	<u>SCRUBBER VENT</u>	<u>GU</u>	<u>1046</u>
<u>7E</u>	<u>DAMPING VENT</u>	<u>GU</u>	<u>6974</u>
<u>7F</u>	<u>CLEANOUT</u>	<u>OL</u>	<u>6974</u>
<u>7H</u>	<u>REACTANT P</u>	<u>OL</u>	<u>523077</u>

¹Use the following codes to designate the physical state for each process stream:

GC = Gas (condensable at ambient temperature and pressure)
 GU = Gas (uncondensable at ambient temperature and pressure)
 SO = Solid
 SY = Sludge or slurry
 AL = Aqueous liquid
 OL = Organic liquid
 IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

☐ Mark (X) this box if you attach a continuation sheet.

7.06 Characterize each process stream identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type. (Refer to the CBI instructions for further explanation and an example.)

☐ Process type PREPOLYMER MANUFACTURE

a. Process Stream ID Code	b. Known Compounds ¹	c. Concen- trations ^{2,3} (% or ppm)	d. Other Expected Compounds	e. Estimated Concentration (% or ppm)
7A	TDI	100% EW	none	
7B	TDI	2 ppm EW	"	
	AIR	99+ % EW	"	
7C	TDI	.02 ppm EW	"	
	AIR	99+ % EW	"	
7D	PREPOLYMER	99 % EW	"	
	TDI	1 % EW	"	
7E	TDI	.02 ppm EW	"	
	AIR	99+ % EW	"	
7G	TDI	1 % EW	"	
	PREPOLYMER	99 % EW	"	
7F	TDI	1 % EW	"	
	PREPOLYMER	99 % EW		

7.06 continued below

7H REACTANT P 100% EW none

☐ Mark (X) this box if you attach a continuation sheet.

7.06 (continued)

¹For each additive package introduced into a process stream, specify the compounds that are present in each additive package, and the concentration of each compound. Assign an additive package number to each additive package and list this number in column b. (Refer to the instructions for further explanation and an example. Refer to the glossary for the definition of additive package.)

Additive Package Number	Components of Additive Package	Concentrations (% or ppm)
<u>1</u>	<u>n. a.</u>	<u>n. a.</u>
<u>2</u>		
<u>3</u>		
<u>4</u>		
<u>5</u>		

²Use the following codes to designate how the concentration was determined:

A = Analytical result
E = Engineering judgement/calculation

³Use the following codes to designate how the concentration was measured:

V = Volume
W = Weight

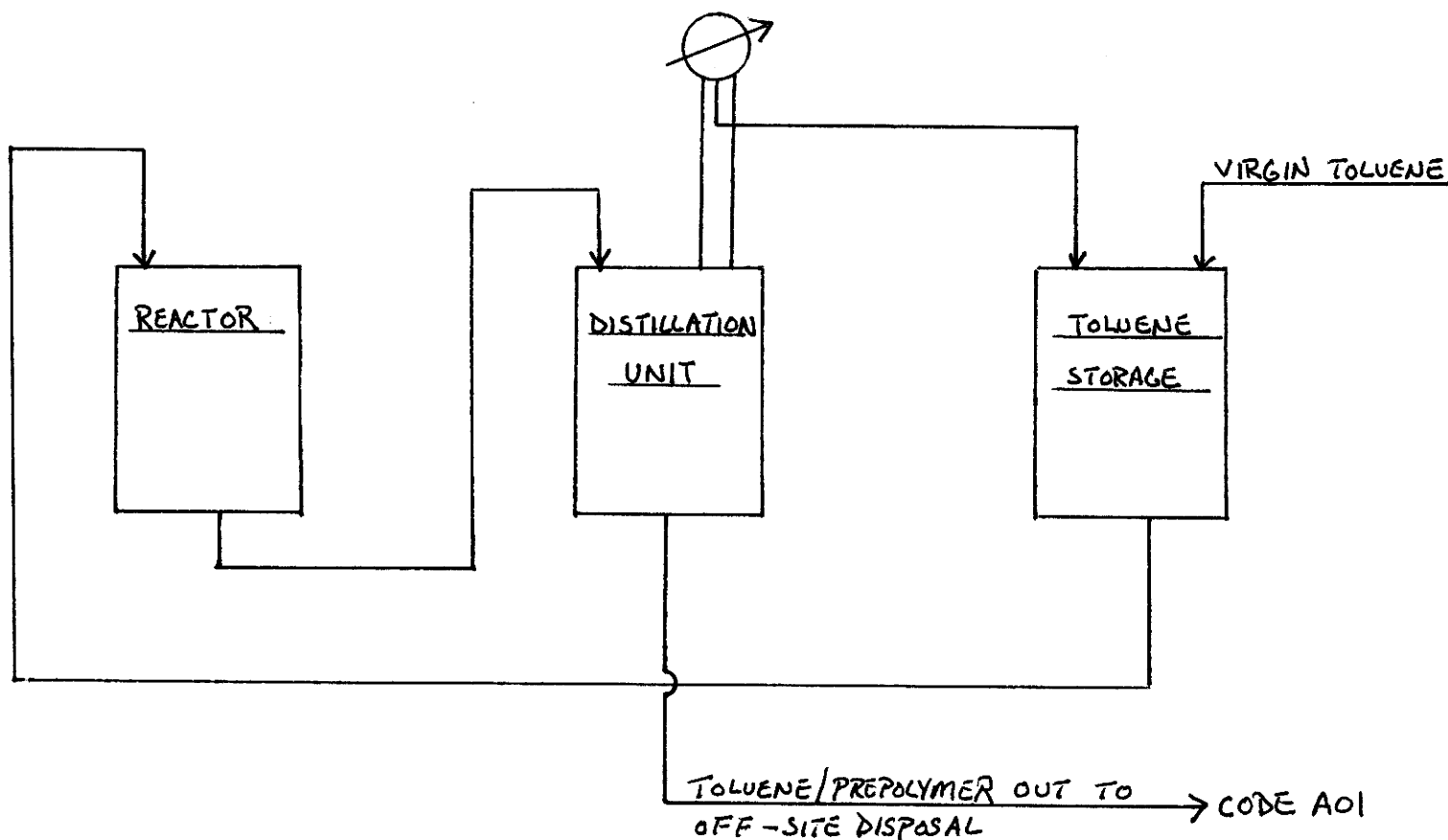
☐ Mark (X) this box if you attach a continuation sheet.

PART A RESIDUAL TREATMENT PROCESS DESCRIPTION

8.01 In accordance with the instructions, provide a residual treatment block flow diagram which describes the treatment process used for residuals identified in question 7.01.

CBI

☐ Process type PREPOLYMER PROCESS



REACTOR CLEANOUT FLOW DIAGRAM

☐ Mark (X) this box if you attach a continuation sheet.

PART B RESIDUAL GENERATION AND CHARACTERIZATION

8.05 Characterize each process stream identified in your residual treatment block flow diagram(s). If a residual treatment block flow diagram is provided for more than process type, photocopy this question and complete it separately for each process type. (Refer to the instructions for further explanation and an example.)

CBI

☐ Process type PREPOLYMER PROCESS

a.	b.	c.	d.	e.	f.	g.
Stream ID Code	Type of Hazardous Waste ¹	Physical State of Residual ²	Known Compounds ³	Concentrations (% or ppm) ^{4,5,6}	Other Expected Compounds	Estimated Concentrations (% or ppm)
A01	I	OL	TOLUENE	36% (E)(V)	NONE	NA
		SY	PREPOLYMER	64 (E)(V)	NONE	NA

8.05 continued below

☐ Mark (X) this box if you attach a continuation sheet.

8.05 (continued)

¹Use the following codes to designate the type of hazardous waste:

I = Ignitable
C = Corrosive
R = Reactive
E = EP toxic
T = Toxic
H = Acutely hazardous

²Use the following codes to designate the physical state of the residual:

GC = Gas (condensable at ambient temperature and pressure)
GU = Gas (uncondensable at ambient temperature and pressure)
SO = Solid
SY = Sludge or slurry
AL = Aqueous liquid
OL = Organic liquid
IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

8.05 continued below

☐ Mark (X) this box if you attach a continuation sheet.

8.05 (continued)

³For each additive package introduced into a process stream, specify the compound that are present in each additive package, and the concentration of each component. Assign an additive package number to each additive package and list this number in column d. (Refer to the instructions for further explanation and an example. Refer to the glossary for the definition of additive package.)

Additive Package Number	Components of Additive Package	Concentrations (% or ppm)
<u>1</u>	<u>TOLUENE</u>	<u>100%.</u>
<u>2</u>		
<u>3</u>		
<u>4</u>		
<u>5</u>		

⁴Use the following codes to designate how the concentration was determined:

A = Analytical result

E = Engineering judgement/calculation

8.05 continued below

☐ Mark (X) this box if you attach a continuation sheet.

8.05 (continued)

⁵Use the following codes to designate how the concentration was measured:

V = Volume

W = Weight

⁶Specify the analytical test methods used and their detection limits in the table below. Assign a code to each test method used and list those codes in column e.

<u>Code</u>	<u>Method</u>	<u>Detection Limit</u> (\pm ug/l)
<u>1</u>	<u>NA</u>	<u>NA</u>
<u>2</u>	<u>NA</u>	<u>NA</u>
<u>3</u>	<u>NA</u>	<u>NA</u>
<u>4</u>	<u>NA</u>	<u>NA</u>
<u>5</u>	<u>NA</u>	<u>NA</u>
<u>6</u>	<u>NA</u>	<u>NA</u>

☐ Mark (X) this box if you attach a continuation sheet.

CBI

¹Use the codes provided in Exhibit 8-1 to designate the waste descriptions

²Use the codes provided in Exhibit 8-2 to designate the management methods

58

NO ON-SITE DISPOSAL OR INCINERATION

8.22 Describe the combustion chamber design parameters for each of the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

☐

Incinerator	Combustion Chamber Temperature (°C)		Location of Temperature Monitor		Residence Time In Combustion Chamber (seconds)	
	Primary	Secondary	Primary	Secondary	Primary	Secondary
1	NONE	NA	NA	NA	NA	NA
2	NA	NA	NA	NA	NA	NA
3	NA	NA	NA	NA	NA	NA

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

8.23 Complete the following table for the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

☐

Incinerator	Air Pollution Control Device ¹	Types of Emissions Data Available
1	NA	NA
2	NA	NA
3	NA	NA

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

¹Use the following codes to designate the air pollution control device:

S = Scrubber (include type of scrubber in parenthesis)

E = Electrostatic precipitator

O = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

PART A EMPLOYMENT AND POTENTIAL EXPOSURE PROFILE

ADRIAN PLANT

9.01 Mark (X) the appropriate column to indicate whether your company maintains records on the following data elements for hourly and salaried workers. Specify for each data element the year in which you began maintaining records and the number of years the records for that data element are maintained. (Refer to the instructions for further explanation and an example.)

CBI

☐

Data Element	Data are Maintained for:		Year in Which Data Collection Began	Number of Years Records Are Maintained
	Hourly Workers	Salaried Workers		
Date of hire	<u>X</u>	<u>X</u>	<u>1970</u>	<u>INDEFINITE</u>
Age at hire	<u>X</u>	<u>X</u>	<u>1970</u>	<u>INDEFINITE</u>
Work history of individual before employment at your facility	<u>X</u>	<u>X</u>	<u>1972</u>	<u>INDEFINITE</u>
Sex	<u>X</u>	<u>X</u>	<u>1987</u>	<u>INDEFINITE</u>
Race	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Job titles	<u>X</u>	<u>NA</u>	<u>1975</u>	<u>INDEFINITE</u>
Start date for each job title	<u>X</u>	<u>NA</u>	<u>1975</u>	<u>INDEFINITE</u>
End date for each job title	<u>X</u>	<u>NA</u>	<u>1975</u>	<u>INDEFINITE</u>
Work area industrial hygiene monitoring data	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Personal employee monitoring data	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Employee medical history	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Employee smoking history	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Accident history	<u>X</u>	<u>X</u>	<u>1971</u>	<u>INDEFINITE</u>
Retirement date	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Termination date	<u>X</u>	<u>X</u>	<u>1970</u>	<u>INDEFINITE</u>
Vital status of retirees	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Cause of death data	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>

☐ Mark (X) this box if you attach a continuation sheet.

9.02 In accordance with the instructions, complete the following table for each activity in which you engage.

CBI

☐

a.	b.	c.	d.	e.
<u>Activity</u>	<u>Process Category</u>	<u>Yearly Quantity (kg)</u>	<u>Total Workers</u>	<u>Total Worker-Hours</u>
Manufacture of the listed substance	Enclosed	_____	_____	_____
	Controlled Release	_____	_____	_____
	Open	_____	_____	_____
On-site use as reactant	Enclosed	_____	_____	_____
	Controlled Release	174,359	21	87,250
	Open	_____	_____	_____
On-site use as nonreactant	Enclosed	_____	_____	_____
	Controlled Release	_____	_____	_____
	Open	_____	_____	_____
On-site preparation of products	Enclosed	_____	_____	_____
	Controlled Release	_____	_____	_____
	Open	_____	_____	_____

☐ Mark (X) this box if you attach a continuation sheet.

9.03 Provide a descriptive job title for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance.

CBI

☐

Labor Category

Descriptive Job Title

A

CHEMICAL OPERATOR

B

FOREMAN

C

SHIPPING & RECEIVING

D

ENVIRONMENTAL TECHNICIANS

E

CHEMICAL TECHNICIANS Q.C.

F

G

H

I

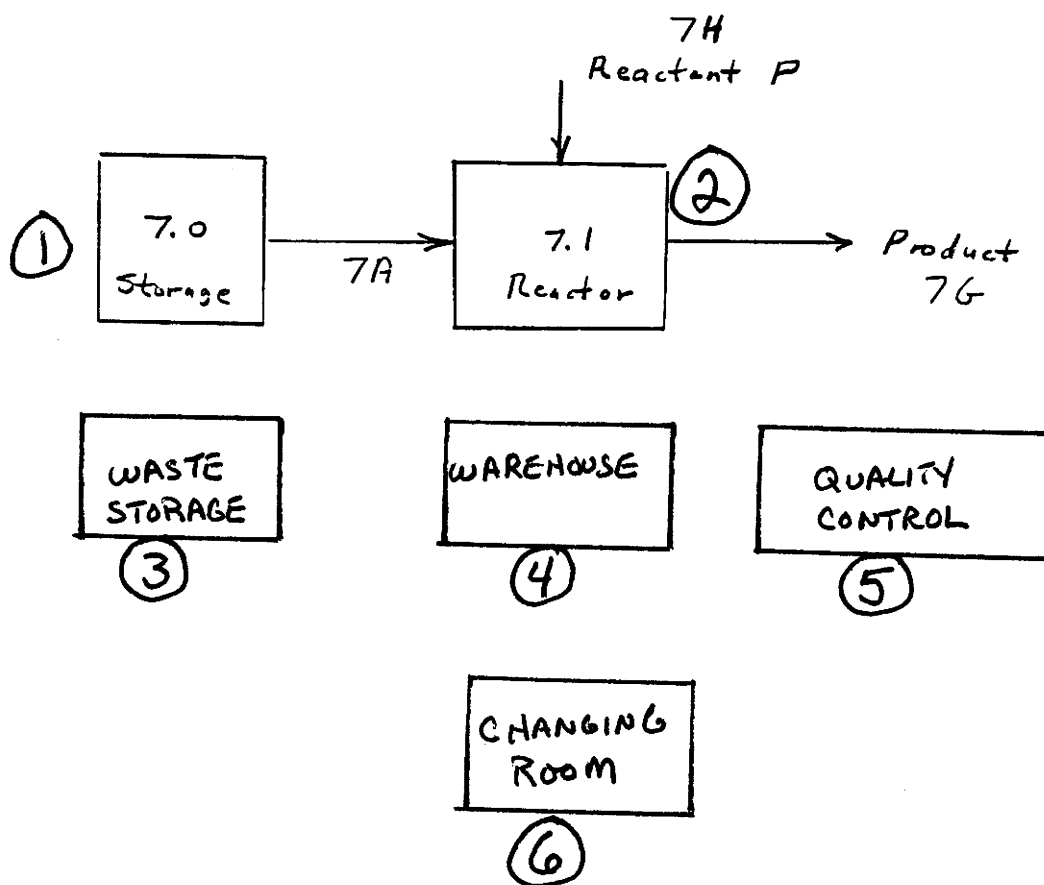
J

☐ Mark (X) this box if you attach a continuation sheet.

9.04 In accordance with the instructions, provide your process block flow diagram(s) and indicate associated work areas.

CBI

☐ Process type PREPOLYMER MANUFACTURE



☐ Mark (X) this box if you attach a continuation sheet.

9.05 Describe the various work area(s) shown in question 9.04 that encompass workers who may potentially come in contact with or be exposed to the listed substance. Add any additional areas not shown in the process block flow diagram in question 7.01 or 7.02. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type PREPOLYMER MANUFACTURING PROCESS

Work Area ID

Description of Work Areas and Worker Activities

- | | |
|----|--|
| 1 | <u>TDI STORAGE TANK (WORKERS UNLOAD VIRGIN MATERIAL INTO TANK)</u> |
| 2 | <u>REACTOR AREA (WORKERS MONITOR REACTOR TEMPERATURE AND PRESSURE)</u>
<u>DRUMMING AREA (WORKERS DRUM OFF FINAL PRODUCT INTO DRUMS)</u> |
| 3 | <u>WASTE STORAGE (ALL WASTE OR OFF SPEC MATERIAL IS STORED HERE UNTIL SENT OUT)</u> |
| 4 | <u>WAREHOUSE (WORKERS UNLOAD OR LOAD DRUMS OF TDI OR STORES THEM)</u> |
| 5 | <u>QUALITY CONTROL LAB (TECHS TEST INCOMING RAW MATERIALS AND PLANT PRODUCTS)</u> |
| 6 | <u>CHANGING ROOM (WORKERS CHANGE INTO AND OUT OF PROTECTIVE CLOTHING)</u> |
| 7 | <u> </u> |
| 8 | <u> </u> |
| 9 | <u> </u> |
| 10 | <u> </u> |

☐ Mark (X) this box if you attach a continuation sheet.

9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type PREPOLYMER PROCESS

Work area 1

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance ¹	Average Length of Exposure Per Day ²	Number of Days per Year Exposed
C	2	INHALATION SKIN CONTACT	OL GU	B	11

¹Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensable at ambient temperature and pressure)
 GU = Gas (uncondensable at ambient temperature and pressure; includes fumes, vapors, etc.)
 SO = Solid

SY = Sludge or slurry
 AL = Aqueous liquid
 OL = Organic liquid
 IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

²Use the following codes to designate average length of exposure per day:

A = 15 minutes or less
 B = Greater than 15 minutes, but not exceeding 1 hour
 C = Greater than one hour, but not exceeding 2 hours

D = Greater than 2 hours, but not exceeding 4 hours
 E = Greater than 4 hours, but not exceeding 8 hours
 F = Greater than 8 hours

☒ Mark (X) this box if you attach a continuation sheet.

9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

☐ Process type PREPOLYMER PROCESS

Work area 2

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance ¹	Average Length of Exposure Per Day ²	Number of Days per Year Exposed
<u>A</u>	<u>12</u>	<u>INHALATION</u>	<u>OL GU</u>	<u>F</u>	<u>250</u>
<u>B</u>	<u>3</u>	<u>SKIN CONTACT</u>	<u>OL GU</u>	<u>B</u>	<u>250</u>

¹Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensable at ambient temperature and pressure)
 GU = Gas (uncondensable at ambient temperature and pressure; includes fumes, vapors, etc.)
 SO = Solid

SY = Sludge or slurry
 AL = Aqueous liquid
 OL = Organic liquid
 IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

²Use the following codes to designate average length of exposure per day:

A = 15 minutes or less
 B = Greater than 15 minutes, but not exceeding 1 hour
 C = Greater than one hour, but not exceeding 2 hours

D = Greater than 2 hours, but not exceeding 4 hours
 E = Greater than 4 hours, but not exceeding 8 hours
 F = Greater than 8 hours

☒ Mark (X) this box if you attach a continuation sheet.

9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

☐ Process type PREPOLYMER PROCESS

Work area 3

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance ¹	Average Length of Exposure Per Day ²	Number of Days per Year Exposed
<u>D</u>	<u>2</u>	<u>INHALATION SKIN CONTACT</u>	<u>OL GU</u>	<u>C</u>	<u>250</u>

¹Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensable at ambient temperature and pressure)
 GU = Gas (uncondensable at ambient temperature and pressure; includes fumes, vapors, etc.)
 SO = Solid

SY = Sludge or slurry
 AL = Aqueous liquid
 OL = Organic liquid
 IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

²Use the following codes to designate average length of exposure per day:

A = 15 minutes or less
 B = Greater than 15 minutes, but not exceeding 1 hour
 C = Greater than one hour, but not exceeding 2 hours

D = Greater than 2 hours, but not exceeding 4 hours
 E = Greater than 4 hours, but not exceeding 8 hours
 F = Greater than 8 hours

☒ Mark (X) this box if you attach a continuation sheet.

9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

☐ Process type PREPOLYMER PROCESS

Work area 4

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance ¹	Average Length of Exposure Per Day ²	Number of Days per Year Exposed
<u>C</u>	<u>2</u>	<u>INHALATION</u> <u>SKIN CONTACT</u>	<u>OL GU</u>	<u>D</u>	<u>250</u>

¹Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensable at ambient temperature and pressure)
 GU = Gas (uncondensable at ambient temperature and pressure; includes fumes, vapors, etc.)
 SO = Solid

SY = Sludge or slurry
 AL = Aqueous liquid
 OL = Organic liquid
 IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

²Use the following codes to designate average length of exposure per day:

A = 15 minutes or less
 B = Greater than 15 minutes, but not exceeding 1 hour
 C = Greater than one hour, but not exceeding 2 hours

D = Greater than 2 hours, but not exceeding 4 hours
 E = Greater than 4 hours, but not exceeding 8 hours
 F = Greater than 8 hours

☒ Mark (X) this box if you attach a continuation sheet.

9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

☐ Process type PREPOLYMER PROCESS

Work area 5

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance ¹	Average Length of Exposure Per Day ²	Number of Days per Year Exposed
<u>E</u>	<u>4</u>	<u>INHALATION SKIN CONTACT</u>	<u>OL GU</u>	<u>D</u>	<u>250</u>

¹Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensable at ambient temperature and pressure)
 GU = Gas (uncondensable at ambient temperature and pressure; includes fumes, vapors, etc.)
 SO = Solid

SY = Sludge or slurry
 AL = Aqueous liquid
 OL = Organic liquid
 IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

²Use the following codes to designate average length of exposure per day:

A = 15 minutes or less
 B = Greater than 15 minutes, but not exceeding 1 hour
 C = Greater than one hour, but not exceeding 2 hours

D = Greater than 2 hours, but not exceeding 4 hours
 E = Greater than 4 hours, but not exceeding 8 hours
 F = Greater than 8 hours

☒ Mark (X) this box if you attach a continuation sheet.

9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type PREPOLYMER PROCESS

Work area 6

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance ¹	Average Length of Exposure Per Day ²	Number of Days per Year Exposed
<u>A</u>	<u>12</u>	<u>INHALATION SKIN CONTACT</u>	<u>OL GU</u>	<u>A</u>	<u>250</u>
<u>B</u>	<u>3</u>	<u>INHALATION SKIN CONTACT</u>	<u>OL GU</u>	<u>A</u>	<u>250</u>
<u>C</u>	<u>2</u>	<u>INHALATION SKIN CONTACT</u>	<u>OL GU</u>	<u>A</u>	<u>11</u>
<u>D</u>	<u>2</u>	<u>INHALATION SKIN CONTACT</u>	<u>OL GU</u>	<u>A</u>	<u>250</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

¹Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensable at ambient temperature and pressure)
 GU = Gas (uncondensable at ambient temperature and pressure; includes fumes, vapors, etc.)
 SO = Solid

SY = Sludge or slurry
 AL = Aqueous liquid
 OL = Organic liquid
 IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

²Use the following codes to designate average length of exposure per day:

A = 15 minutes or less
 B = Greater than 15 minutes, but not exceeding 1 hour
 C = Greater than one hour, but not exceeding 2 hours

D = Greater than 2 hours, but not exceeding 4 hours
 E = Greater than 4 hours, but not exceeding 8 hours
 F = Greater than 8 hours

☒ Mark (X) this box if you attach a continuation sheet.

9.07 For each labor category represented in question 9.06, indicate the 8-hour Time Weighted Average (TWA) exposure levels and the 15-minute peak exposure levels. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type PREPOLYMER PROCESS

Work area 1, 2, 3, 4, 5, 6

Labor Category	8-hour TWA Exposure Level (ppm, mg/m ³ , other-specify)	15-Minute Peak Exposure Level (ppm, mg/m ³ , other-specify)
<u>A</u>	<u>NA</u>	<u>NA</u>
<u>B</u>	<u>NA</u>	<u>NA</u>
<u>C</u>	<u>NA</u>	<u>NA</u>
<u>D</u>	<u>NA</u>	<u>NA</u>
<u>E</u>	<u>NA</u>	<u>NA</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

☐ Mark (X) this box if you attach a continuation sheet.

PART B WORK PLACE MONITORING PROGRAM

9.08 If you monitor worker exposure to the listed substance, complete the following table.

CBI

☐

Sample/Test	Work Area ID	Testing Frequency (per year)	Number of Samples (per test)	Who Samples ¹	Analyzed In-House (Y/N)	Number of Years Records Maintained
Personal breathing zone	NA	NA	NA	NA	NA	NA
General work area (air)	NA	NA	NA	NA	NA	NA
Wipe samples	NA	NA	NA	NA	NA	NA
Adhesive patches	NA	NA	NA	NA	NA	NA
Blood samples	NA	NA	NA	NA	NA	NA
Urine samples	NA	NA	NA	NA	NA	NA
Respiratory samples	NA	NA	NA	NA	NA	NA
Allergy tests	NA	NA	NA	NA	NA	NA
Other (specify)						
NA	NA	NA	NA	NA	NA	NA
Other (specify)						
NA	NA	NA	NA	NA	NA	NA
Other (specify)						
NA	NA	NA	NA	NA	NA	NA

¹Use the following codes to designate who takes the monitoring samples:

A = Plant industrial hygienist

B = Insurance carrier

C = OSHA consultant

D = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

9.09 For each sample type identified in question 9.08, describe the type of sampling and analytical methodology used for each type of sample.

<input type="checkbox"/> Sample Type	Sampling and Analytical Methodology
NA	NA
NA	NA
NA	NA
NA	NA
NA	NA

9.10 If you conduct personal and/or ambient air monitoring for the listed substance, specify the following information for each equipment type used.

CBI

<input type="checkbox"/> Equipment Type ¹	Detection Limit ²	Manufacturer	Averaging Time (hr)	Model Number
E	80 PPB	MDA SCIENTIFIC	NA	7000

¹Use the following codes to designate personal air monitoring equipment types:

- A = Passive dosimeter
- B = Detector tube
- C = Charcoal filtration tube with pump
- D = Other (specify) _____

Use the following codes to designate ambient air monitoring equipment types:

- E = Stationary monitors located within work area
- F = Stationary monitors located within facility
- G = Stationary monitors located at plant boundary
- H = Mobile monitoring equipment (specify) _____
- I = Other (specify) _____

²Use the following codes to designate detection limit units:

- A = ppm
- B = Fibers/cubic centimeter (f/cc)
- C = Micrograms/cubic meter (μ/m^3)

☐ Mark (X) this box if you attach a continuation sheet.

9.11 If you conduct routine medical tests for monitoring the health effects of exposure to the listed substance, specify the type and frequency of the tests.

CBI

☐

Test Description

Frequency
(weekly, monthly, yearly, etc.)

NA

NA

☐ Mark (X) this box if you attach a continuation sheet.

PART C ENGINEERING CONTROLS

9.12 Describe the engineering controls that you use to reduce or eliminate worker exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type PREPOLYMER PROCESS

Work area 1

Engineering Controls	Used (Y/N)	Year Installed	Upgraded (Y/N)	Star. Year Upgraded
Ventilation:				
Local exhaust	<u>N</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
General dilution	<u>Y</u>	<u>1982</u>	<u>N</u>	<u>NA</u>
Other (specify) <u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Vessel emission controls	<u>Y</u>	<u>1982</u>	<u>N</u>	<u>NA</u>
Mechanical loading or packaging equipment	<u>Y</u>	<u>1982</u>	<u>N</u>	<u>NA</u>
Other (specify) <u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>

☐ Mark (X) this box if you attach a continuation sheet.

PART C ENGINEERING CONTROLS

9.12 Describe the engineering controls that you use to reduce or eliminate worker exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type PREPOLYMER PROCESS
 Work area 2

<u>Engineering Controls</u>	<u>Used (Y/N)</u>	<u>Year Installed</u>	<u>Upgraded (Y/N)</u>	<u>Year Upgraded</u>
Ventilation:				
Local exhaust	<u>Y</u>	<u>1978</u>	<u>N</u>	<u>NA</u>
General dilution	<u>Y</u>	<u>1976</u>	<u>N</u>	<u>NA</u>
Other (specify) <u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Vessel emission controls	<u>Y</u>	<u>1976</u>	<u>Y</u>	<u>1985</u>
Mechanical loading or packaging equipment	<u>Y</u>	<u>1976</u>	<u>Y</u>	<u>1988</u>
Other (specify) <u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>

☐ Mark (X) this box if you attach a continuation sheet.

PART C ENGINEERING CONTROLS

9.12 Describe the engineering controls that you use to reduce or eliminate worker exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type PREPOLYMER PROCESS

Work area 3

Engineering Controls	Used (Y/N)	Year Installed	Upgraded (Y/N)	Year Upgrad
Ventilation:				
Local exhaust	<u>N</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
General dilution	<u>Y</u>	<u>1988</u>	<u>N</u>	<u>NA</u>
Other (specify) <u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Vessel emission controls	<u>N</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Mechanical loading or packaging equipment	<u>N</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Other (specify) <u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>

☐ Mark (X) this box if you attach a continuation sheet.

PART C ENGINEERING CONTROLS

9.12 Describe the engineering controls that you use to reduce or eliminate worker exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type PREPOLYMER PROCESS
 Work area 4

<u>Engineering Controls</u>	<u>Used (Y/N)</u>	<u>Year Installed</u>	<u>Upgraded (Y/N)</u>	<u>Year Upgraded</u>
Ventilation:				
Local exhaust	<u>N</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
General dilution	<u>Y</u>	<u>1984</u>	<u>N</u>	<u>NA</u>
Other (specify) <u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Vessel emission controls	<u>N</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Mechanical loading or packaging equipment	<u>N</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Other (specify) <u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>

☐ Mark (X) this box if you attach a continuation sheet.

PART C ENGINEERING CONTROLS

9.12 Describe the engineering controls that you use to reduce or eliminate worker exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type PREPOLYMER PROCESS

Work area 5

<u>Engineering Controls</u>	<u>Used (Y/N)</u>	<u>Year Installed</u>	<u>Upgraded (Y/N)</u>	<u>Year Upgraded</u>
Ventilation:				
Local exhaust	<u>Y</u>	<u>1970</u>	<u>N</u>	<u>NA</u>
General dilution	<u>Y</u>	<u>1985</u>	<u>Y</u>	<u>1988</u>
Other (specify) <u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Vessel emission controls	<u>N</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Mechanical loading or packaging equipment	<u>N</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Other (specify) <u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>

☐ Mark (X) this box if you attach a continuation sheet.

PART C ENGINEERING CONTROLS

9.12 Describe the engineering controls that you use to reduce or eliminate worker exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type PREPOLYMER PROCESS

Work area 6

<u>Engineering Controls</u>	<u>Used (Y/N)</u>	<u>Year Installed</u>	<u>Upgraded (Y/N)</u>	<u>Year Upgraded</u>
Ventilation:				
Local exhaust	<u>N</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
General dilution	<u>Y</u>	<u>1985</u>	<u>N</u>	<u>NA</u>
Other (specify) <u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Vessel emission controls	<u>N</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Mechanical loading or packaging equipment	<u>N</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Other (specify) <u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>

☐ Mark (X) this box if you attach a continuation sheet.

- 9.13 Describe all equipment or process modifications you have made within the 3 years prior to the reporting year that have resulted in a reduction of worker exposure to the listed substance. For each equipment or process modification described, state the percentage reduction in exposure that resulted. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type PREPOLYMER MANUFACTURE

Work area

Equipment or Process Modification	Reduction in Worker Exposure Per Year (%)
<u>VESSEL EMISSIONS CONTROL - REPAIRING</u>	<u>90 %</u>
_____	_____
_____	_____
_____	_____

☐ Mark (X) this box if you attach a continuation sheet.

PART D PERSONAL PROTECTIVE AND SAFETY EQUIPMENT

9.14 Describe the personal protective and safety equipment that your workers wear or use in each work area in order to reduce or eliminate their exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

[] Process type PREPOLYMER PROCESS
Work area 1

<u>Equipment Types</u>	<u>Wear or Use (Y/N)</u>
Respirators	<u>Y</u>
Safety goggles/glasses	<u> </u>
Face shields	<u> </u>
Coveralls	<u>Y</u>
Bib aprons	<u> </u>
Chemical-resistant gloves	<u>Y</u>
Other (specify)	
<u>(SCBA) SELF-CONTAINED BREATHING APP.</u>	<u>Y</u>
<u>FULL RUBBER SUIT</u>	<u>Y</u>
<u>SAFETY SHOES</u>	<u>Y</u>
<u>HARD HAT</u>	<u>Y</u>
<u>RUBBER BOOTS</u>	<u>Y</u>

[] Mark (X) this box if you attach a continuation sheet.

PART D PERSONAL PROTECTIVE AND SAFETY EQUIPMENT

- 9.14 Describe the personal protective and safety equipment that your workers wear or use in each work area in order to reduce or eliminate their exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

[] Process type PREPOLYMER PROCESS

Work area 2

<u>Equipment Types</u>	<u>Wear or Use (Y/N)</u>
Respirators	<u> </u>
Safety goggles/glasses	<u>Y</u>
Face shields	<u>Y</u>
Coveralls	<u>Y</u>
Bib aprons	<u> </u>
Chemical-resistant gloves	<u>Y</u>
Other (specify)	
<u>SAFETY SHOES</u>	<u>Y</u>
<u>HARD HAT</u>	<u>Y</u>

[] Mark (X) this box if you attach a continuation sheet.

PART D PERSONAL PROTECTIVE AND SAFETY EQUIPMENT

- 9.14 Describe the personal protective and safety equipment that your workers wear or use in each work area in order to reduce or eliminate their exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type PREPOLYMER PROCESS

Work area 3

<u>Equipment Types</u>	<u>Wear or Use (Y/N)</u>
Respirators	<u>Y</u>
Safety goggles/glasses	<u>Y</u>
Face shields	<u>Y</u>
Coveralls	<u>Y</u>
Bib aprons	<u> </u>
Chemical-resistant gloves	<u>Y</u>
Other (specify)	
<u>SAFETY SHOES</u>	<u>Y</u>
<u>HARD HAT</u>	<u>Y</u>
<u>RUBBER SUIT (FULL)</u>	<u>Y</u>
<u>DISPOSABLE SUITS</u>	<u>Y</u>

☐ Mark (X) this box if you attach a continuation sheet.

PART D PERSONAL PROTECTIVE AND SAFETY EQUIPMENT

- 9.14 Describe the personal protective and safety equipment that your workers wear or use in each work area in order to reduce or eliminate their exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type PREPOLYMER PROCESS

Work area 4

<u>Equipment Types</u>	<u>Wear or Use (Y/N)</u>
Respirators	<u> </u>
Safety goggles/glasses	<u> Y </u>
Face shields	<u> </u>
Coveralls	<u> Y </u>
Bib aprons	<u> </u>
Chemical-resistant gloves	<u> Y </u>
Other (specify)	
<u>SAFETY SHOES</u>	<u> Y </u>
<u>HARD HAT</u>	<u> Y </u>

☐ Mark (X) this box if you attach a continuation sheet.

PART D PERSONAL PROTECTIVE AND SAFETY EQUIPMENT

- 9.14 Describe the personal protective and safety equipment that your workers wear or use in each work area in order to reduce or eliminate their exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

[] Process type PREPOLYMER PROCESS

Work area 5

<u>Equipment Types</u>	<u>Wear or Use (Y/N)</u>
Respirators	_____
Safety goggles/glasses	<u>Y</u>
Face shields	_____
Coveralls	_____
Bib aprons	_____
Chemical-resistant gloves	<u>Y</u>
Other (specify)	
<u>SAFETY SHOES</u>	<u>Y</u>
<u>LAB COATS</u>	<u>Y</u>

[] Mark (X) this box if you attach a continuation sheet.

PART D PERSONAL PROTECTIVE AND SAFETY EQUIPMENT

9.14 Describe the personal protective and safety equipment that your workers wear or use in each work area in order to reduce or eliminate their exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

[] Process type PREPOLYMER PROCESS

Work area

<u>Equipment Types</u>	<u>Wear or Use (Y/N)</u>
Respirators	NA
Safety goggles/glasses	NA
Face shields	NA
Coveralls	NA
Bib aprons	NA
Chemical-resistant gloves	NA
Other (specify)	
<u>NA</u>	<u>NA</u>

☐ Mark (X) this box if you attach a continuation sheet.

9.15 If workers use respirators when working with the listed substance, specify for each process type, the work areas where the respirators are used, the type of respirators used, the average usage, whether or not the respirators were fit tested, and the type and frequency of the fit tests. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type PREPOLYMER PROCESS

Work Area	Respirator Type	Average Usage ¹	Fit Tested (Y/N)	Type of Fit Test ²	Frequency of Fit Tests (per year)
<u>1</u>	<u>FULL FACE OR SCBA</u>	<u>E</u>	<u>Y</u>	<u>QL</u>	<u>NOTE</u>
<u>3</u>	<u>HALF FACE DUAL CANISTER</u>	<u>B</u>	<u>Y</u>	<u>QL</u>	<u>NOTE</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

¹Use the following codes to designate average usage:

A = Daily
 B = Weekly
 C = Monthly
 D = Once a year
 E = Other (specify) WHEN UNLOADING VIRGIN TD1

²Use the following codes to designate the type of fit test:

QL = Qualitative
 QT = Quantitative

NOTE: EMPLOYEES MUST PASS A QUALITATIVE FIT TEST FOR THEIR RESPIRATOR, WHEN IT IS ISSUED TO THEM. WE HAVE A RESPIRATOR SAFETY TRAINING PROGRAM IN WHICH WE TEACH EMPLOYEES HOW TO TELL IF RESPIRATOR IS NOT WORKING AND PROPER CARE AND MAINTAINANCE TECHNIQUES. ALL RESPIRATORS USED ARE NIOSH/MSHA APPROVED.

☐ Mark (X) this box if you attach a continuation sheet.

PART E. WORK PRACTICES

- 9.19 Describe all of the work practices and administrative controls used to reduce or eliminate worker exposure to the listed substance (e.g., restrict entrance only to authorized workers, mark areas with warning signs, insure worker detection and monitoring practices, provide worker training programs, etc.). Photocopy this question and complete it separately for each process type and work area.

CBI

☐

Process type Prepolymer Process

Work area 1,2,3,4,5 & 6

This facility uses an Employee Hazardous Communication Training Program. This training is broken down into specific modules that pertain to different work

practices, areas and processes. They are given annually. These specific modules

are: 1) Fire & Explosion 2) Dealing with Emergencies 3) Right to Know

4) Personal Protection 5) MSDS & Labeling 6) Toxicity & Health 7) RCRA Waste Handling

8) Formaldehyde. We also have regular safety meetings, inspections & process reviews.

- 9.20 Indicate (X) how often you perform each housekeeping task used to clean up routine leaks or spills of the listed substance. Photocopy this question and complete it separately for each process type and work area.

Process type Prepolymer Process

Work area 1,2,3,4,5 & 6

<u>Housekeeping Tasks</u>	<u>Less Than Once Per Day</u>	<u>1-2 Times Per Day</u>	<u>3-4 Times Per Day</u>	<u>More Than 4 Times Per Day</u>
Sweeping	_____	_____	_____	_____
Vacuuming	_____	_____	_____	_____
Water flushing of floors	_____	_____	_____	_____
Other (specify)	_____	_____	_____	_____

Leaks and spills are never routine! When one occurs, it is neutralized and the area is decontaminated immediately. All floors are swept at least once a week, some are three times a week or as needed. The process area 2, floor is water flushed once a week. General plant housekeeping is an issue brought up daily at our morning operations meetings and action is taken that day to clean up any area that starts to look unkempt.

☐ Mark (X) this box if you attach a continuation sheet.

9.21 Do you have a written medical action plan for responding to routine or emergency exposure to the listed substance?

Routine exposure

Yes 1

No 2

Emergency exposure

Yes 1

No 2

If yes, where are copies of the plan maintained?

Routine exposure: _____

Emergency exposure: _____

9.22 Do you have a written leak and spill cleanup plan that addresses the listed substance? Circle the appropriate response.

Yes ①

No 2

If yes, where are copies of the plan maintained? ENVIRONMENTAL OFFICE; PLANT AREA

Has this plan been coordinated with state or local government response organizations? Circle the appropriate response.

Yes ①

No 2

9.23 Who is responsible for monitoring worker safety at your facility? Circle the appropriate response.

Plant safety specialist 1

Insurance carrier 2

OSHA consultant 3

Other (specify) _____ 4

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 10 ENVIRONMENTAL RELEASE

General Instructions:

Complete Part E (questions 10.23-10.35) for each non-routine release involving the listed substance that occurred during the reporting year. Report on all releases that are equal to or greater than the listed substance's reportable quantity value, RQ, unless the release is federally permitted as defined in 42 U.S.C. 9601, or is specifically excluded under the definition of release as defined in 40 CFR 302.3(22). Reportable quantities are codified in 40 CFR Part 302. If the listed substance is not a hazardous substance under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and, thus, does not have an RQ, then report releases that exceed 2,270 kg. If such a substance however, is designated as a CERCLA hazardous substance, then report those releases that are equal to or greater than the RQ. The facility may have answered these questions or similar questions under the Agency's Accidental Release Information Program and may already have this information readily available. Assign a number to each release and use this number throughout this part to identify the release. Releases over more than a 24-hour period are not single releases, i.e., the release of a chemical substance equal to or greater than an RQ must be reported as a separate release for each 24-hour period the release exceeds the RQ.

For questions 10.25-10.35, answer the questions for each release identified in question 10.23. Photocopy these questions and complete them separately for each release.

PART A GENERAL INFORMATION

10.01 Where is your facility located? Circle all appropriate responses.

CBI

- ☐ Industrial area ①
- Urban area ②
- Residential area ③
- Agricultural area 4
- Rural area ⑤
- Adjacent to a park or a recreational area ⑥
- Within 1 mile of a navigable waterway 7
- Within 1 mile of a school, university, hospital, or nursing home facility ⑧
- Within 1 mile of a non-navigable waterway 9
- Other (specify) EDGE OF CITY LIMITS ⑩

☐ Mark (X) this box if you attach a continuation sheet.

- 10.02 Specify the exact location of your facility (from central point where process unit is located) in terms of latitude and longitude or Universal Transverse Mercader (UTM) coordinates.

Latitude 41 ° 53 ' 40 "

Longitude 84 ° 01 ' 02 "

UTM coordinates Zone _____, Northing _____, Easting _____

- 10.03 If you monitor meteorological conditions in the vicinity of your facility, provide the following information.

Average annual precipitation inches/year

Predominant wind direction

- 10.04 Indicate the depth to groundwater below your facility.

Depth to groundwater meters

- 10.05 For each on-site activity listed, indicate (Y/N/NA) all routine releases of the listed substance to the environment. (Refer to the instructions for a definition of Y, N, and NA.)

CBI

☐

On-Site Activity	Environmental Release		
	Air	Water	Land
Manufacturing	NA	NA	NA
Importing	NA	NA	NA
Processing	Y	N	N
Otherwise used	NA	NA	NA
Product or residual storage	N	N	N
Disposal	NA	N	N
Transport	N	N	N

☐ Mark (X) this box if you attach a continuation sheet.

10.06 Provide the following information for the listed substance and specify the level of precision for each item. (Refer to the instructions for further explanation and an example.)

CBI

☐

Quantity discharged to the air 0.1 kg/yr \pm 50 %

Quantity discharged in wastewaters 0.1 kg/yr \pm 50 %

Quantity managed as other waste in on-site treatment, storage, or disposal units 70 kg/yr \pm 50 %

Quantity managed as other waste in off-site treatment, storage, or disposal units N.A. kg/yr \pm 0 %

☐ Mark (X) this box if you attach a continuation sheet.

10.08 Describe the control technologies used to minimize release of the listed substance for each process stream containing the listed substance as identified in your process block or residual treatment block flow diagram(s). Photocopy this question and complete it separately for each process type.

CBI

☐ Process type PREPOLYMER MANUFACTURE

Stream ID Code

Control Technology

Percent Efficiency

7B

POLYOL SCRAMBLER

99 %

☐ Mark (X) this box if you attach a continuation sheet.

PART B. RELEASE TO AIR

- 10.09 Point Source Emissions -- Identify each emission point source containing the listed substance in terms of a Stream ID Code as identified in your process block or residual treatment block flow diagram(s), and provide a description of each point source. Do not include raw material and product storage vents, or fugitive emission sources (e.g., equipment leaks). Photocopy this question and complete it separately for each process type.

CBI

☐

Process type

PREPOLYMER MANUFACTURE

Point Source
ID Code

Description of Emission Point Source

7C

BLOWER VENT

☐ Mark (X) this box if you attach a continuation sheet.

☐ Mark (X) this box if you attach a continuation sheet.

10.10 Emission Characteristics - - Characterize the emissions for each Point Source ID Code identified in question 10.09 by completing the following table.

CBI

Point Source ID Code	Physical State ¹	Average Emissions (kg/day)	Frequency ² (days/yr)	Duration ³ (min/day)	Average Emission Factor ⁴	Maximum Emission Rate (kg/min)	Maximum Emission Rate Frequency (events/yr)	Maximum Emission Rate Duration (min/event)
7C	G	.005	250	500	.000001	.000001	300	60

¹Use the following codes to designate physical state at the point of release:
G = Gas; V = Vapor; P = Particulate; A = Aerosol; O = Other (specify) _____

²Frequency of emission at any level of emission

³Duration of emission at any level of emission

⁴Average Emission Factor — Provide estimated (\pm 25 percent) emission factor (kg of emission per kg of production of listed substance)

10.11 Stack Parameters -- Identify the stack parameters for each Point Source ID Code identified in question 10.09 by completing the following table.

CBI

[]

Point Source ID Code	Stack Height(m)	Stack Inner Diameter (at outlet) (m)	Exhaust Temperature (°C)	Emission Exit Velocity (m/sec)	Building Height(m) ¹	Building Width(m) ²	Vent Type ³
7C	15	.15	25	25	10	20	V

¹Height of attached or adjacent building

²Width of attached or adjacent building

³Use the following codes to designate vent type:

H = Horizontal

V = Vertical

[] Mark (X) this box if you attach a continuation sheet.

10.12 If the listed substance is emitted in particulate form, indicate the particle size distribution for each Point Source ID Code identified in question 10.09. Photocopy this question and complete it separately for each emission point source.

CBI

☐

Point source ID code 7C

Size Range (microns)

Mass Fraction (% ± % precision)

< 1

N.A.

≥ 1 to < 10

≥ 10 to < 30

≥ 30 to < 50

≥ 50 to < 100

≥ 100 to < 500

≥ 500

N.A.

Total = 100%

☐ Mark (X) this box if you attach a continuation sheet.

PART C FUGITIVE EMISSIONS

- 10.13 Equipment Leaks -- Complete the following table by providing the number of equipment types listed which are exposed to the listed substance and which are in service according to the specified weight percent of the listed substance passing through the component. Do this for each process type identified in your process block or residual treatment block flow diagram(s). Do not include equipment types that are not exposed to the listed substance. If this is a batch or intermittently operated process, give an overall percentage of time per year that the process type is exposed to the listed substance. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type PREPOLYMER MANUFACTURE
 Percentage of time per year that the listed substance is exposed to this process type NA %

Equipment Type	Number of Components in Service by Weight Percent of Listed Substance in Process Stream					Greater than 99%
	Less than 5%	5-10%	11-25%	26-75%	76-99%	
Pump seals ¹						
Packed	<u>NA</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u>NA</u>
Mechanical	<u>NA</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u>NA</u>
Double mechanical ²	<u>NA</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u>NA</u>
Compressor seals ¹	<u>NA</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u>NA</u>
Flanges	<u>5</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u>1</u>
Valves						
Gas ³	<u>5</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u>NA</u>
Liquid	<u>1</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u>1</u>
Pressure relief devices ⁴ (Gas or vapor only)	<u>1</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u>NA</u>
Sample connections						
Gas	<u>NA</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u>NA</u>
Liquid	<u>1</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u>NA</u>
Open-ended lines ⁵ (e.g., purge, vent)						
Gas	<u>1</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u>NA</u>
Liquid	<u>NA</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u>NA</u>

¹List the number of pump and compressor seals, rather than the number of pumps or compressors

10.13 continued on next page

☐ Mark (X) this box if you attach a continuation sheet.

10.13 (continued)

²If double mechanical seals are operated with the barrier (B) fluid at a pressure greater than the pump stuffing box pressure and/or equipped with a sensor (S) that will detect failure of the seal system, the barrier fluid system, or both, indicate with a "B" and/or an "S", respectively

³ Conditions existing in the valve during normal operation

⁴Report all pressure relief devices in service, including those equipped with control devices

⁵Lines closed during normal operation that would be used during maintenance operations

10.14 Pressure Relief Devices with Controls -- Complete the following table for those pressure relief devices identified in 10.13 to indicate which pressure relief devices in service are controlled. If a pressure relief device is not controlled, enter "None" under column c.

[]

[illegible]

¹Refer to the table in question 10.13 and record the percent range given under the heading entitled "Number of Components in Service by Weight Percent of Listed Substance" (e.g., <5%, 5-10%, 11-25%, etc.)

²The EPA assigns a control efficiency of 100 percent for equipment leaks controlled with rupture discs under normal operating conditions. The EPA assigns a control efficiency of 98 percent for emissions routed to a flare under normal operating conditions

☐ Mark (X) this box if you attach a continuation sheet.

- 10.15 Equipment Leak Detection -- If a formal leak detection and repair program is in place, complete the following table regarding those leak detection and repair procedures. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type PREPOLYMER MANUFACTURE

Equipment Type	Leak Detection Concentration (ppm or mg/m ³) Measured at <u>10</u> Inches from Source	Detection Device ¹	Frequency of Leak Detection (per year)	Repairs Initiated (days after detection)	Repairs Completed (days after initiated)
Pump seals					
Packed	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Mechanical	<u>NA</u>	<u>'</u>	<u>NA</u>	<u>'</u>	<u>NA</u>
Double mechanical	<u>NA</u>	<u>'</u>	<u>'</u>	<u>'</u>	<u>'</u>
Compressor seals	<u>NA</u>	<u>'</u>	<u>'</u>	<u>'</u>	<u>'</u>
Flanges	<u>0.02 ppm.</u>	<u>ITM</u>	<u>weekly</u>	<u>1</u>	<u>1</u>
Valves					
Gas	<u>0.02 ppm</u>	<u>ITM</u>	<u>weekly</u>	<u>1</u>	<u>1</u>
Liquid	<u>0.02 ppm</u>	<u>ITM</u>	<u>weekly</u>	<u>1</u>	<u>1</u>
Pressure relief devices (gas or vapor only)	<u>0.02 ppm</u>	<u>ITM</u>	<u>annually</u>	<u>2</u>	<u>2</u>
Sample connections					
Gas	<u>NA</u>				
Liquid	<u>0.02 ppm</u>	<u>ITM</u>	<u>weekly</u>	<u>1</u>	<u>1</u>
Open-ended lines					
Gas	<u>0.02 ppm.</u>	<u>ITM</u>	<u>annually</u>	<u>1</u>	<u>1</u>
Liquid	<u>NA</u>	<u>'</u>	<u>'</u>	<u>'</u>	<u>'</u>

¹Use the following codes to designate detection device:

POVA = Portable organic vapor analyzer

FPM = Fixed point monitoring

0 = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

☐ Mark (X) this box if you attach a continuation sheet.

- 10.16 Raw Material, Intermediate and Product Storage Emissions - - Complete the following table by providing the information on each liquid raw material, intermediate, and product storage vessel containing the listed substance as identified in your process block or residual treatment block flow diagram(s).

CBI

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Vessel Type ¹	Floating Roof Seals ²	Composition of Stored Materials ³	Throughput (liters per year)	Vessel Filling Rate (gpm)	Vessel Filling Duration (min)	Vessel Inner Diameter (m)	Vessel Height (m)	Operating Vessel Volume (l)	Vessel Emission Controls ⁴	Design Flow Rate ⁵	Vent Diameter (cm)	Control Efficiency (%)	Basis for Estimate ⁶
P (50)	NA	100	150,000	100	60	3	7	25000	BURN VENT	NA	NA	100	C
F	NA	100	150000	20	30	2	2	3000	BURN VENT	NA	NA	100	C

¹Use the following codes to designate vessel type:

F = Fixed roof
 CIF = Contact internal floating roof
 NCIF = Noncontact internal floating roof
 EFR = External floating roof
 P = Pressure vessel (indicate pressure rating)
 H = Horizontal
 U = Underground

²Use the following codes to designate floating roof seals:

MS1 = Mechanical shoe, primary
 MS2 = Shoe-mounted secondary
 MS2R = Rim-mounted, secondary
 LM1 = Liquid-mounted resilient filled seal, primary
 LM2 = Rim-mounted shield
 LMW = Weather shield
 VM1 = Vapor mounted resilient filled seal, primary
 VM2 = Rim-mounted secondary
 VMW = Weather shield

³Indicate weight percent of the listed substance. Include the total volatile organic content in parenthesis

⁴Other than floating roofs

⁵Gas/vapor flow rate the emission control device was designed to handle (specify flow rate units)

⁶Use the following codes to designate basis for estimate of control efficiency:

C = Calculations
 S = Sampling

PART E NON-ROUTINE RELEASES

10.23 Indicate the date and time when the release occurred and when the release ceased or was stopped. If there were more than six releases, attach a continuation sheet and list all releases.

<u>Release</u>	<u>Date Started</u>	<u>Time (am/pm)</u>	<u>Date Stopped</u>	<u>Time (am/pm)</u>
<u>1</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
<u>2</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
<u>3</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
<u>4</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
<u>5</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
<u>6</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>

10.24 Specify the weather conditions at the time of each release.

<u>Release</u>	<u>Wind Speed (km/hr)</u>	<u>Wind Direction</u>	<u>Humidity (%)</u>	<u>Temperature (°C)</u>	<u>Precipitation (Y/N)</u>
<u>1</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>2</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>3</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>4</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>5</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>6</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

☐ Mark (X) this box if you attach a continuation sheet.
